TR610 User's Manual

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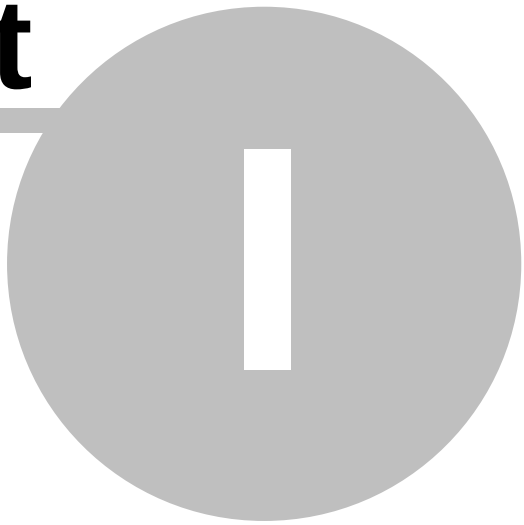
Part



1 Introduction

PROMAG™

Last update: 24 November 2008

Update history can be found here 60

The TR610 is a versatile, yet easy-to-use Time Recorder. It utilizes RFID technology to allow for quick user registration -- users may not even have to take their employee card out of their wallet to scan it.

The TR610's bright LCD display and four buttons make for a user-friendly interface with a very low learning curve. While regular users quickly understand how to use the device, it also features a complete on-screen setup menu which allows an administrator to fully configure all settings (functioning parameters) using a "Master Card". The menu system is navigated using the four buttons on the device.

Ethernet connectivity and an integrated web server make the TR610 easy to administer remotely. All device settings can be configured. The event log may be viewed, searched and downloaded.

Since the TR610 has a built-in webserver, it does not require additional software to administer. Alternatively, for larger systems with multiple terminals, you could use Tibbo AggreGate as an administrative back-end.

To keep time and date precise, the TR610 can automatically synchronize the internal clock with an Internet time server, while taking into account the pre-set timezone.

System integrators and developers may also be interested to know that the TR610 is internally based on Tibbo BASIC, and its application is open-source and may be obtained freely and customized. Interested parties can even develop entirely new applications, from scratch.

Features

- Bright, clear LCD display
- Based on RFID (Proximity) technology
- 10/100 Base-T Ethernet port
- RS232 serial port for connecting external serial devices (such as a barcode scanner)
- Two relays to control external loads, such as an electric bell and a turnstile

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- Internal flash memory stores approx. 6,000 event log records
- Wall-mount or desktop operation (display image orientation may be configured)
- Internal backup battery for the real-time clock
- Firmware and internal application may be upgraded through the network or serial port
- Built-in Web server for administration and event log download
- IP address configuration using DHCP
- Time/Date synchronization through SNTP (time-zone can be preset)
- Works with Tibbo AggreGate
- Internal application written in Tibbo BASIC and may be changed or customized

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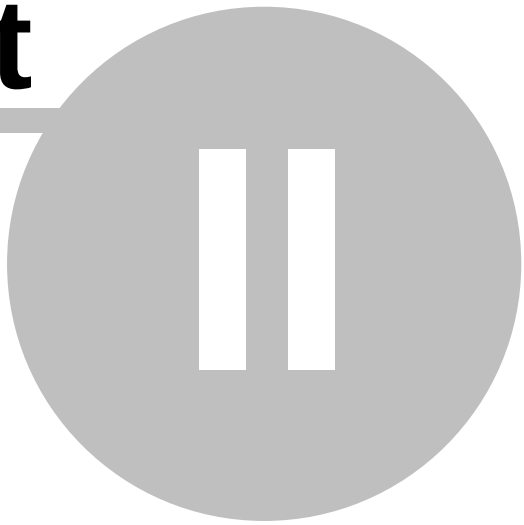
Part



2 Getting started

These topics cover the basics of what the TR610 is, and how to begin using it with the standard default application, as provided with the device.

Hardware Installation 8 - Shows you how to connect the TR610 and prepare it for use.

Powering Up For the First Time 12 - Shows you what to expect when you turn the device on for the first time.

Setting a New IP Address 14 - Goes over setting an IP address for the device.

Time Synchronization 16 - Shows how to set up time synchronization with a time server.

Working in the Normal Mode 18 - Provides an overview of normal use of the device. You can let your users read this topic if they have any questions about operating the terminal.

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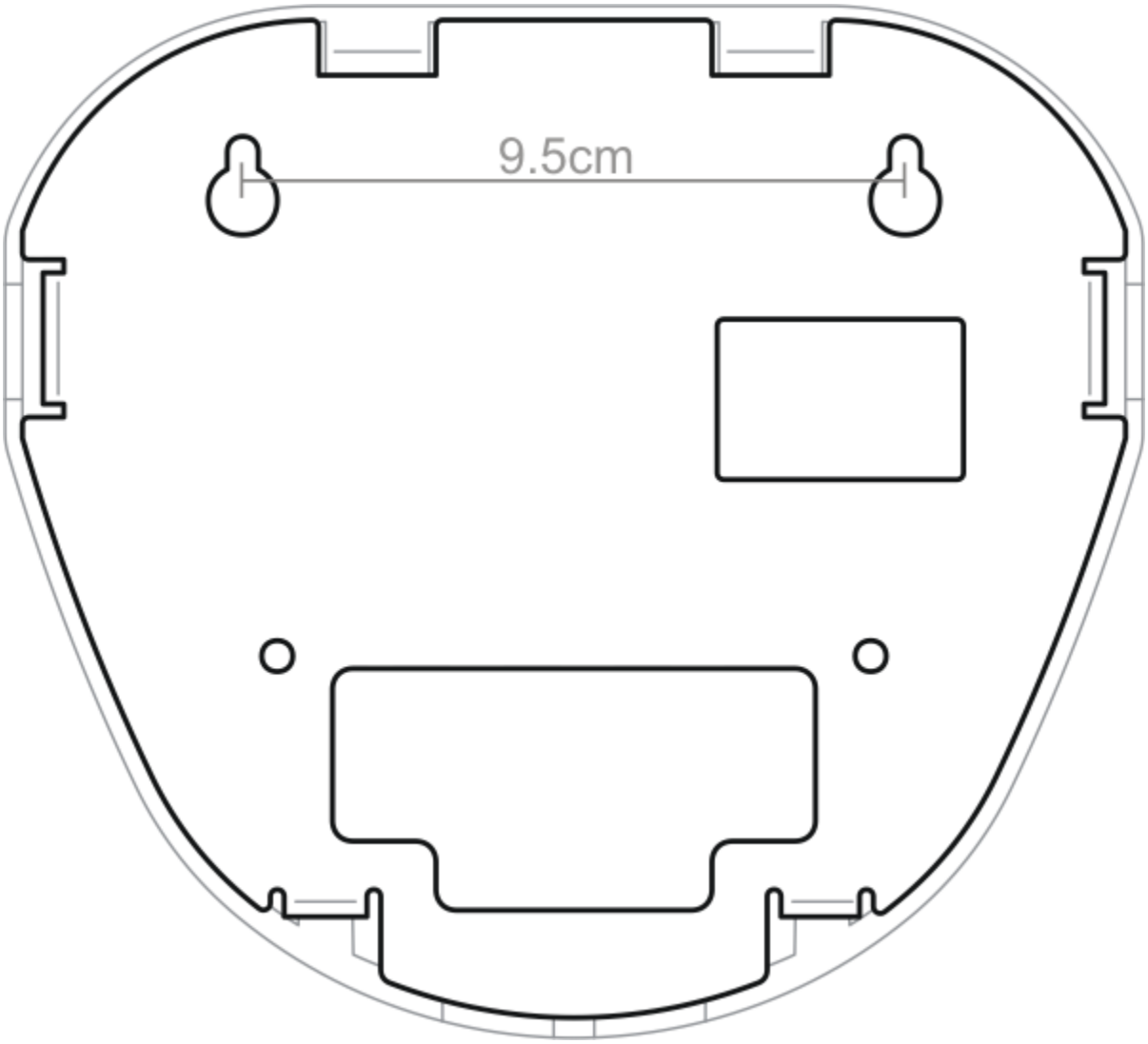
2.1 Hardware Installation

The TR610 can be mounted on a wall or placed on a desk. To install the terminal:

1. Open the box the terminal came in, and take it out of the box. The kit should include the following:

- TR610 Terminal
- 12V Power Adaptor
- Two mounting screws
- Two screw anchors (for drilling into the wall)
- CD containing manual

2. **If mounting on a wall:** Drive the two provided mounting screws into the wall, 9.5cm apart, using the provided screw anchors as needed. These should fit the terminal's mounting holes:



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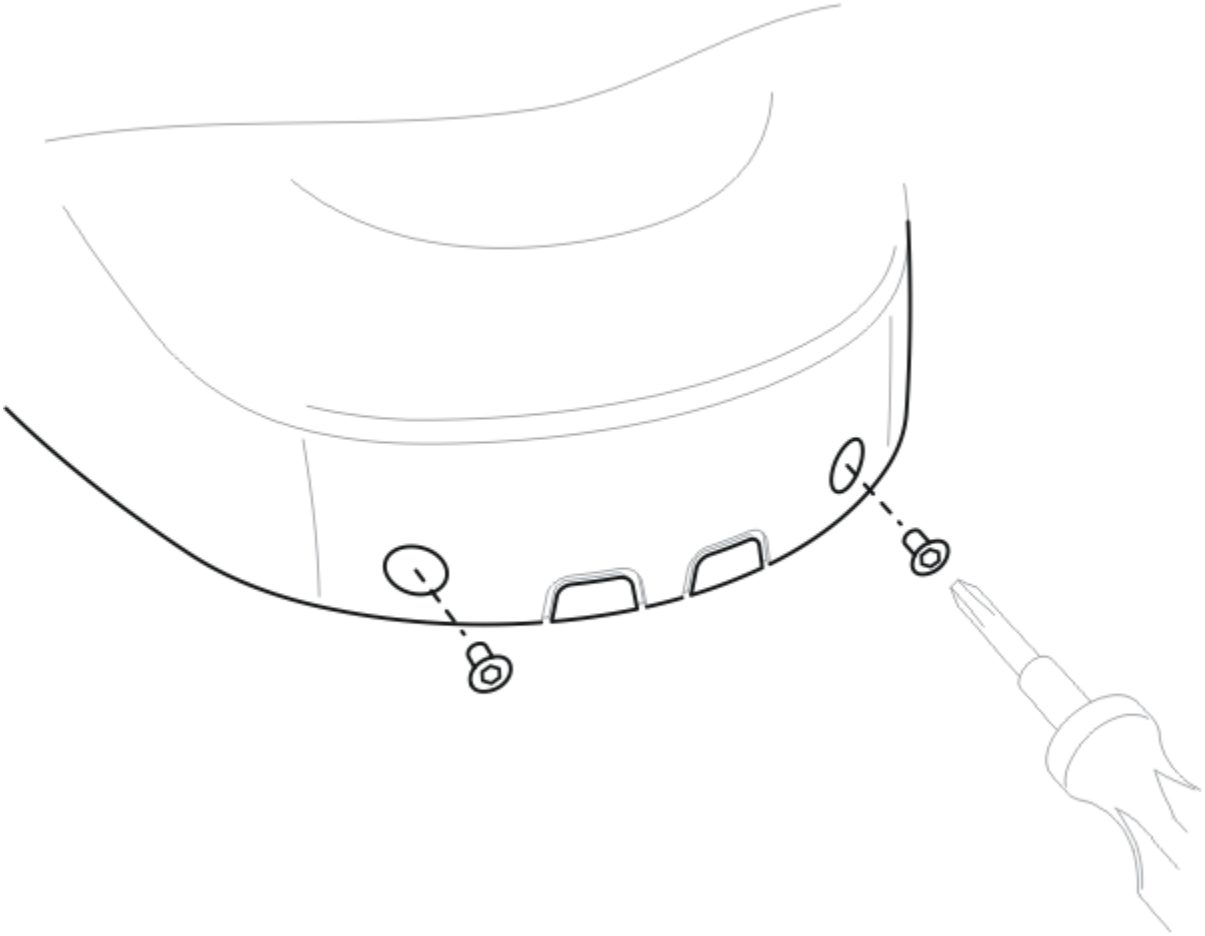
3. Use the included screwdriver to release the two screws in the front of the cover:



4. Carefully flip the top cover up, by holding the metal base of the terminal and pulling up the edge from which you removed the screws. **Note! The top does not come off.** It is connected via a ribbon cable - it only flips up.

5. With the terminal open, locate the Ethernet and power connectors:

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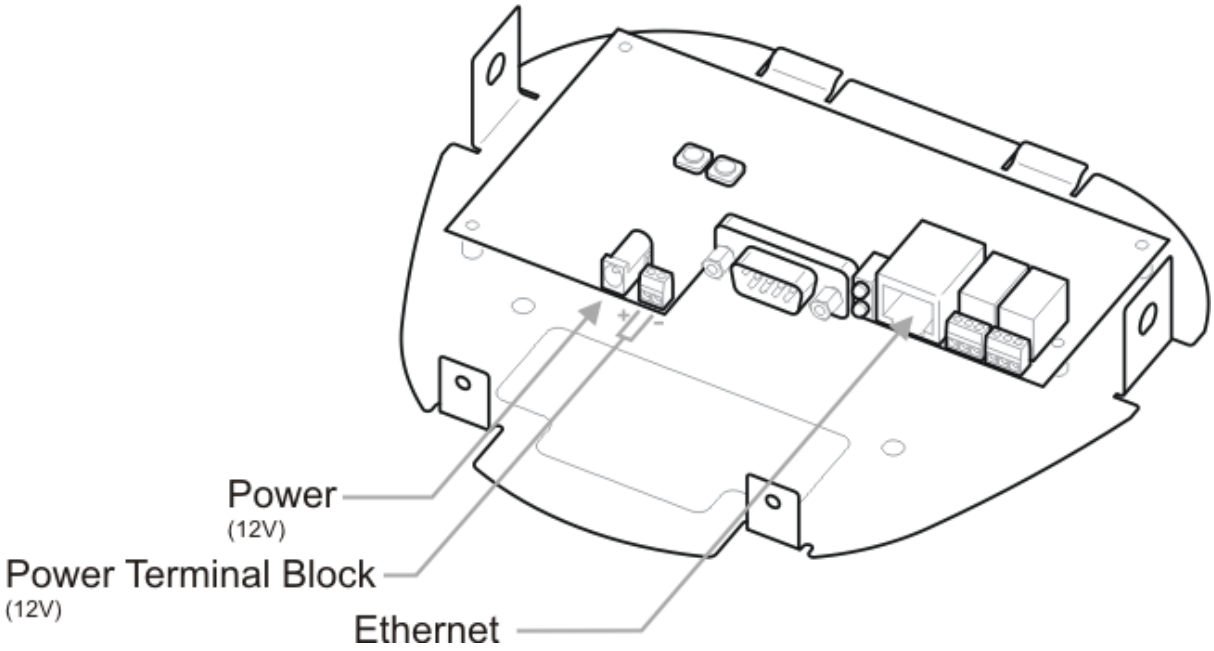

To power the TR610, plug the provided 12V adaptor into the power jack. Alternatively, wire a power cable into the Terminal Block located next to the power jack.

For a complete overview of the different parts in the diagram, see I/O Connector Pin Assignment & Cable Wiring 57 in the Reference section.

6. Now route the cables into the terminal and connect them (Ethernet and power).

If mounting on a wall: There are two possible ways to route cables into the terminal:

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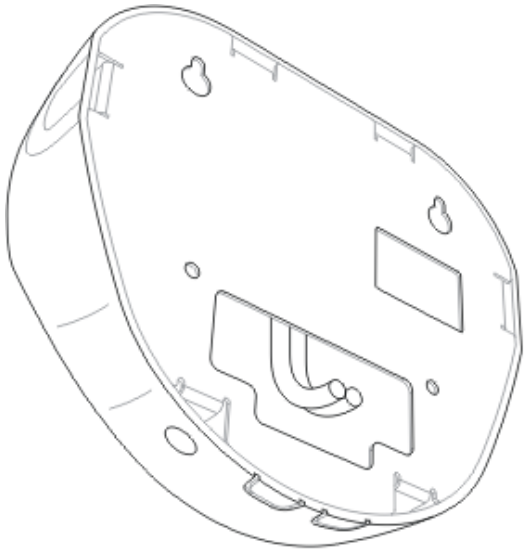
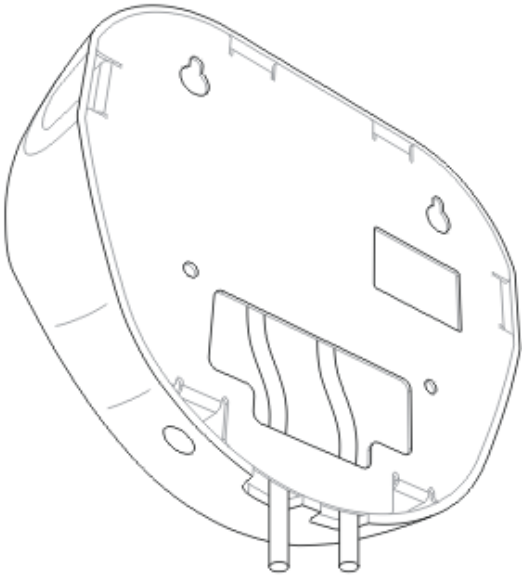


A: Back-Plate Cable Routing



B: Top-Cover Cable Routing

Method **A** (routing via the back-plate) may be used when you don't want any cables to be visible around the device. Using this method, the cable comes from within the wall. The cables are routed through the opening in the back plate (shown above).

Method **B** may be used when cables are routed on the surface of the wall, or using wiring ducts. To route the cables through the top cover, the two plastic flaps covering the cable holes should be snapped off (see drawing **B** above - these are the holes through which the cables go).

If mounting on a desk: Usually method **B** should be used (unless you wish to route the cables through the actual surface of the desk by making a hole).

7. Once the cables are routed properly into the terminal and connected, close the top cover and re-insert the screws.

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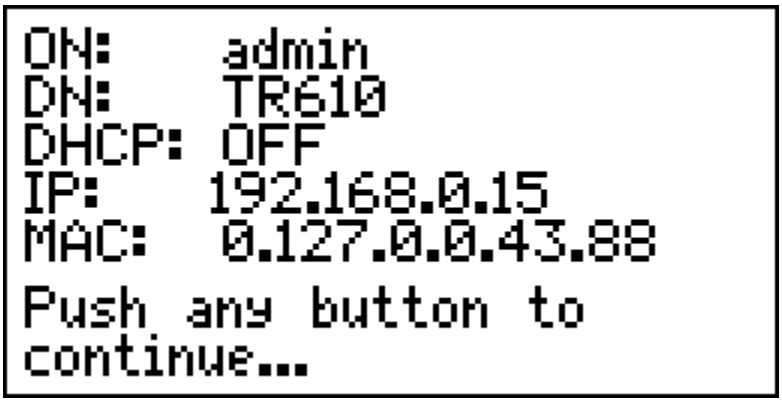
2.2 Powering Up for The First Time

When you connect the TR610 to a power source for the first time, the following sequence of screens will be shown:

Logo Screen

The first screen displays the GIGA-TMS logo and the current version of the internal application. This screen is shown every time the device boots, not only on the first time.

Information Screen



This screen provides an overview of basic device settings, as follows:

ON: Owner Name. See General Settings 23.

DN: Device Name. See General Settings 23.

DHCP: Status of IP address configuration through Dynamic Host Configuration Protocol (OFF, OK or FAIL). See Network Settings 24.

IP: The current IP address of the terminal. See Web-Based Setup and Administration 21 and Network Settings 24.

MAC: Media Access Control address. This is a unique address every Ethernet device has. Unlike other device settings, it may not be changed using the on-screen menus or web-based setup. It should be treated as read-only. You can learn more about MAC addresses here.

This screen is shown every time the device boots, not only on the first time.

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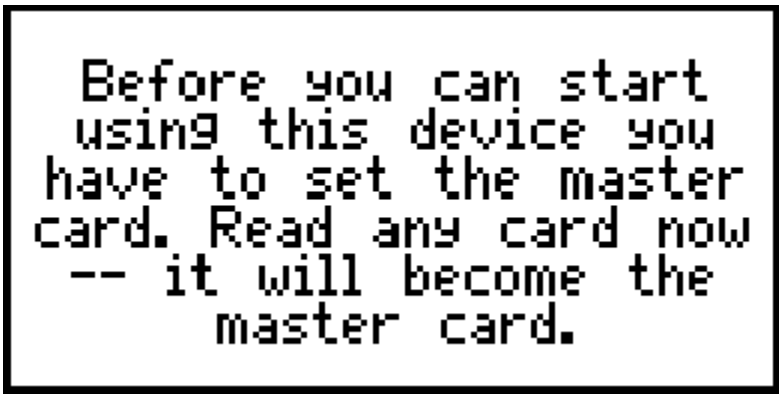
Master Card Enrollment Screen

To administer the TR610, you need to designate one RFID card as the **Master Card.** This card would then be used to access the TR610's on-screen Setup menu. Don't use your own employee card -- then you won't be able to use it to clock in/out.

If this is the first time the device is powered up (or if it has just been initialized 48), the Master Card enrollment screen is shown:



You should now scan the RFID card which you designated as a Master Card.

Master Card Confirmation Screen

Once you scan the master card, you will hear a beep, and the following screen will be shown:

You can now use this card to access the terminal's internal setup menus 31. Keep it in a safe place!

If you do lose the card, you would have to initialize 48 the terminal.

Now hit any of the terminal's four buttons, and you will soon see the Normal Mode 18 screen.

The next thing to do is to set the terminal's IP address 14.

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2.3 Configuring IP, Gateway & Netmask

The terminal is now on, but can you reach it to download records and configure it from a web browser?

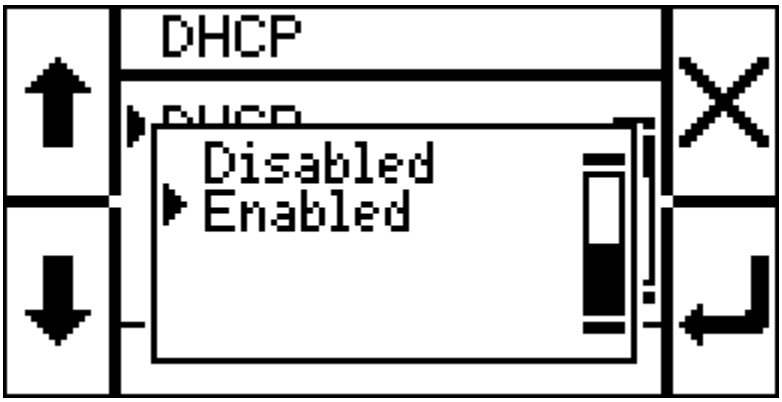
For you to be able to do so, a correct IP address must be configured, along with all other network settings. There are two ways to configure these settings:

Automatic Configuration Using DHCP

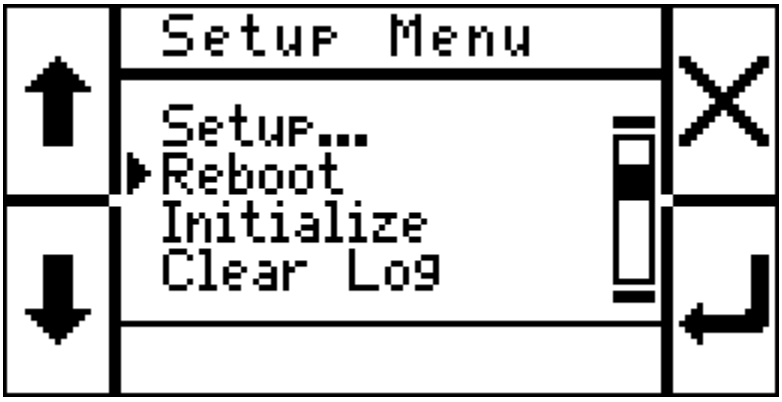
By default, DHCP (Dynamic Host Configuration Protocol, see more here 24) is enabled. When you power up the device, watch the information screen closely: DHCP should say **ENABLED** and then the IP address of the device will be displayed.

In case DHCP is disabled perform the following operations to enable it:

1. Scan the Master Card to go into the on-screen menu. For a description of the controls in the on-screen menu, see here 31.
2. Go to Setup > Network > DHCP and select **Enabled**:



3. Go back in the menu system and select **Reboot** in the main menu:



The device will now reboot. Watch the information screen closely: DHCP should say **ENABLED** and then the IP address of the device will be displayed.

Manual Configuration

Sometimes, DHCP does not work or is not configured. In such a case, the settings need to be manually configured:

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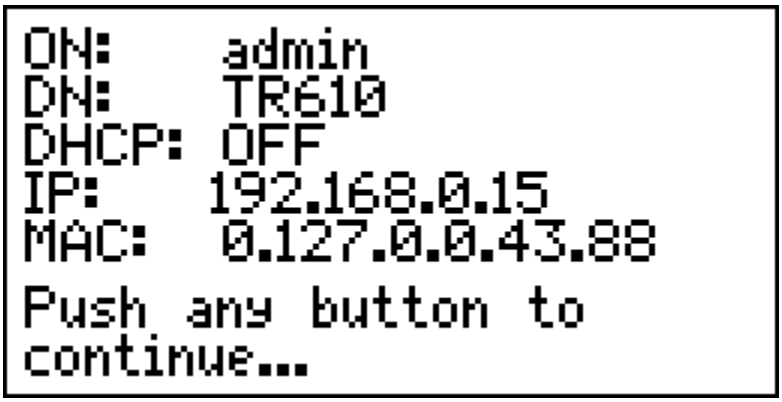
1. You will need to know the **netmask** and **gateway IP** used in your network, as well as what IP address to assign the terminal. If you do not know these settings, find out first from your System Administrator, and then continue with the steps below. Make sure you have these to hand.
2. Scan the Master Card to go into the on-screen menu.
3. Go to Setup > Network > DHCP and select **Disabled**.
4. Go back to the Network menu, and go to IP Address.
5. Using the left-side buttons on the device, enter the desired IP address. The system of entering strings and numbers using the buttons is described here 32.
6. Go back to the Network menu, and go to Gateway IP. Enter the gateway IP using the same method.
7. Finally, enter the Netmask using the same method.
8. Go back in the menu system and select **Reboot** in the main menu. The device should now reboot and show a screen similar to this:



As you can see, DHCP is off, and the IP address you set for the device should appear.

Testing the IP Address

To see if the TR610 is indeed configured and corrected to the network, open a web browser (Firefox, Internet Explorer, etc) and enter the terminal's IP address in the navigation bar. You should get the Web-Based Setup 21 screen.

The next thing to do would be configuring automatic time synchronization 16 (or just setting the correct time, if synchronization is not needed).

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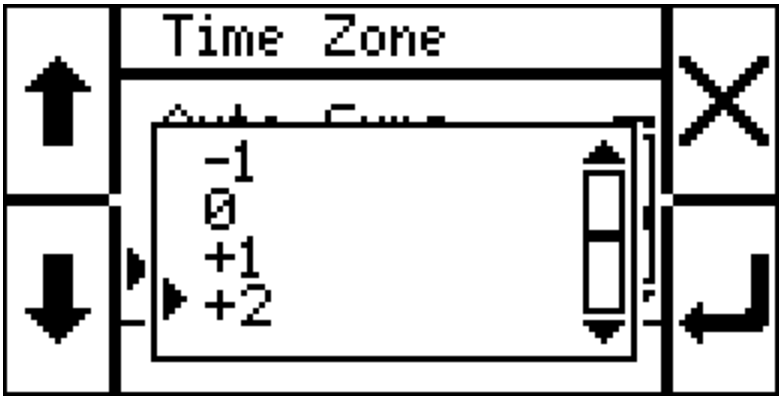
2.4 Time Synchronization

The TR610 features time synchronization using SNTP (Simple Network Time Protocol, see here for more information).

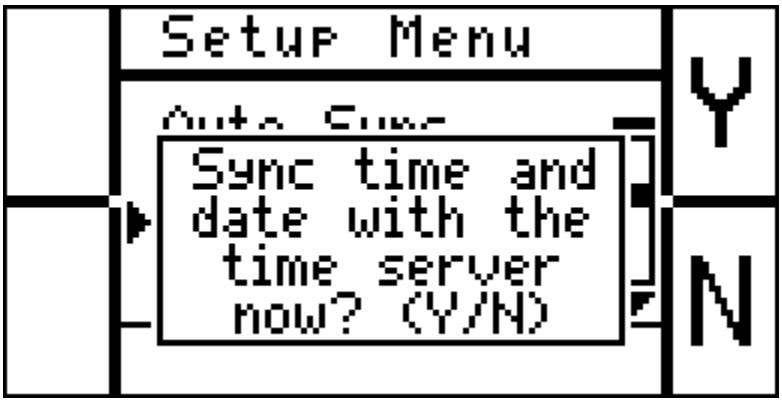
Configuring Time Synchronization

These instructions apply to the on-screen setup, based on the assumption that they will be done immediately after setting a new IP address 14. They can also be done using the Web administration 21 interface.

1. Scan your master card to go into the setup screen, if you are not yet there.
2. Go to **Setup > Date/Time > Time Server**. By default, the SNTP server used is 192.43.244.18, which is the IP address for time.nist.gov. Ordinarily, there should be no reason to change the default value. Make sure this is the correct value, or enter another one if you wish to switch to another SNTP server.
3. Go to **Setup > Date/Time > Time Zone** and select your current Time Zone (relative to UTC/GMT):



4. Now test it: Go to **Setup Date/Time > Sync Now**. You will get the following prompt:



5. Select Y (yes) and watch the screen. If all goes well, time sync should work now. If it fails for some reason, re-check your network settings and Time Server address.

Configuring Auto-Sync

Auto-sync allows the TR610 to connect to the timeserver once a day, and re-set its internal clock so that the time is always accurate.

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1. Go to **Setup > Date/Time > Auto Sync > Enable/Disable**.
2. Select **Enable**.
3. Go to **Setup > Date/Time > Auto Sync > Sync Time**. (For help in entering the time, see Text Entry 32.)
4. Enter the time of day in which you wish the terminal to connect to its time server.
5. That's it. When the time comes, the terminal would connect to the time server (configured above) and get the correct time.

Note that DST (Daylight Savings Time) is not accounted for. Thus, when the clock shifts to/ from DST, you would have to re-configure the **Time Zone** setting to keep the terminal showing the correct time.

Manually Setting The Date And Time

Sometimes, time synchronization may not be needed (or possible). In those cases, you can configure the current date and time manually:

1. Go to **Setup > Date/Time > Set Date**.
2. Set the current date. The system for entering numbers and strings using the on-screen setup is described here 32.
3. Go to **Setup > Date/Time > Set Time**.
4. Set the current time, in 24-hour format ("military time").

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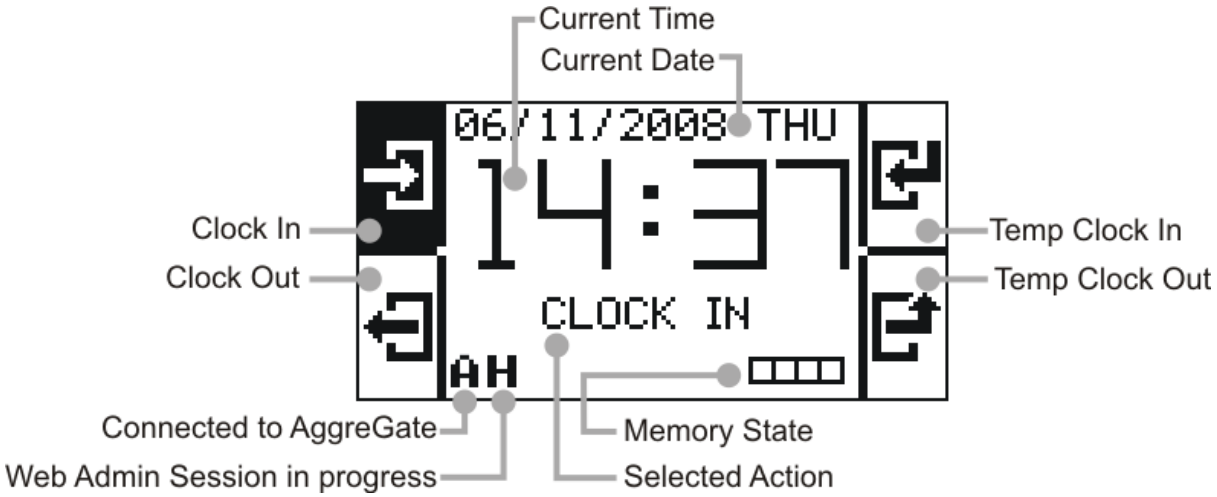
2.5 Working in the Normal Mode

These are the parts of the interface in Normal Mode:

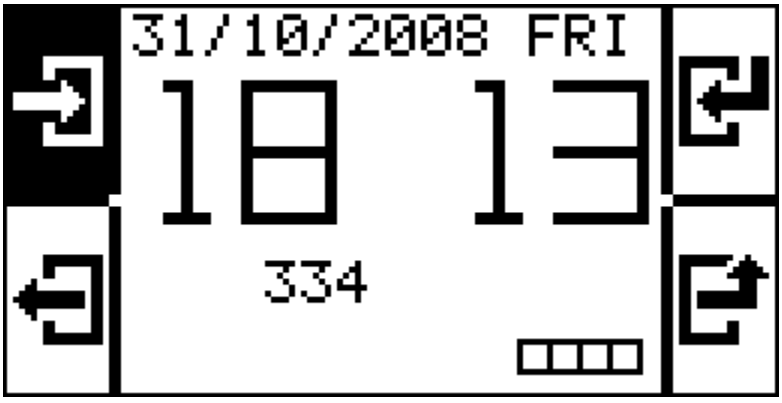


Memory state expresses the amount of free memory on the device using a series of squares (each square represents 25% of available device memory for records). When a square becomes black, it means this amount of memory is occupied. So two black squares and two white squares, for example, mean that 50% of the memory space for records is occupied.

Each button activates a corresponding icon on the screen.

Ordinary use consists of two steps:

1. Hit the correct button (if it's not already selected). The button's associated action will be displayed at the center of the screen.
2. Scan your card. The terminal will beep and display the card number:



A new record would be added to the event log.

This would happen for all cards, except for the **Master Card** you designated before. Scanning this card would take you to the on-screen setup menu 31.

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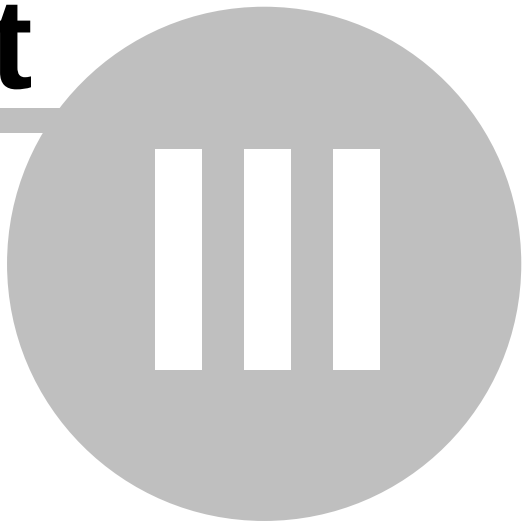
Part



3 Administration

These topics are meant for system administrators, and explain the various ways in which the TR610 may be configured, including the meaning of all device settings.

Web-Based Setup and Administration 21 - Explains the web setup system and all device settings.

On-Screen Setup and Administration 31 - Explains the on-screen setup system, including how to navigate the menu and enter text and numbers using the four buttons of the device.

AggreGate Integration 34 - Explains how to connect the TR610 to AggreGate LinkServer.

Programming Priorities 43 - Shows what happens when a programming session is started when another session is already in progress.

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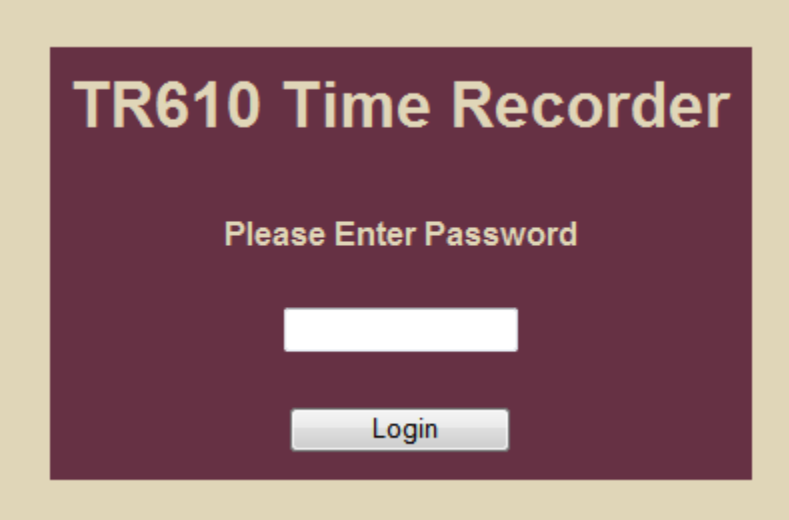
3.1 Web-Based Setup and Administration

To access the web-based menu system, run a web browser (Internet Explorer or Mozilla Firefox), and in the Address Bar enter the terminal's IP.

To find the terminal's IP address, watch the terminal physically as it boots (you may need to disconnect and reconnect the power right when you're by the terminal) and note the IP address listed in the startup information screen 12.

Once you've accessed the terminal's IP address, you should get the following screen:



By default, the password is **admin** (you can change it after you log in).

Once you log in, you'll see the administration interface:

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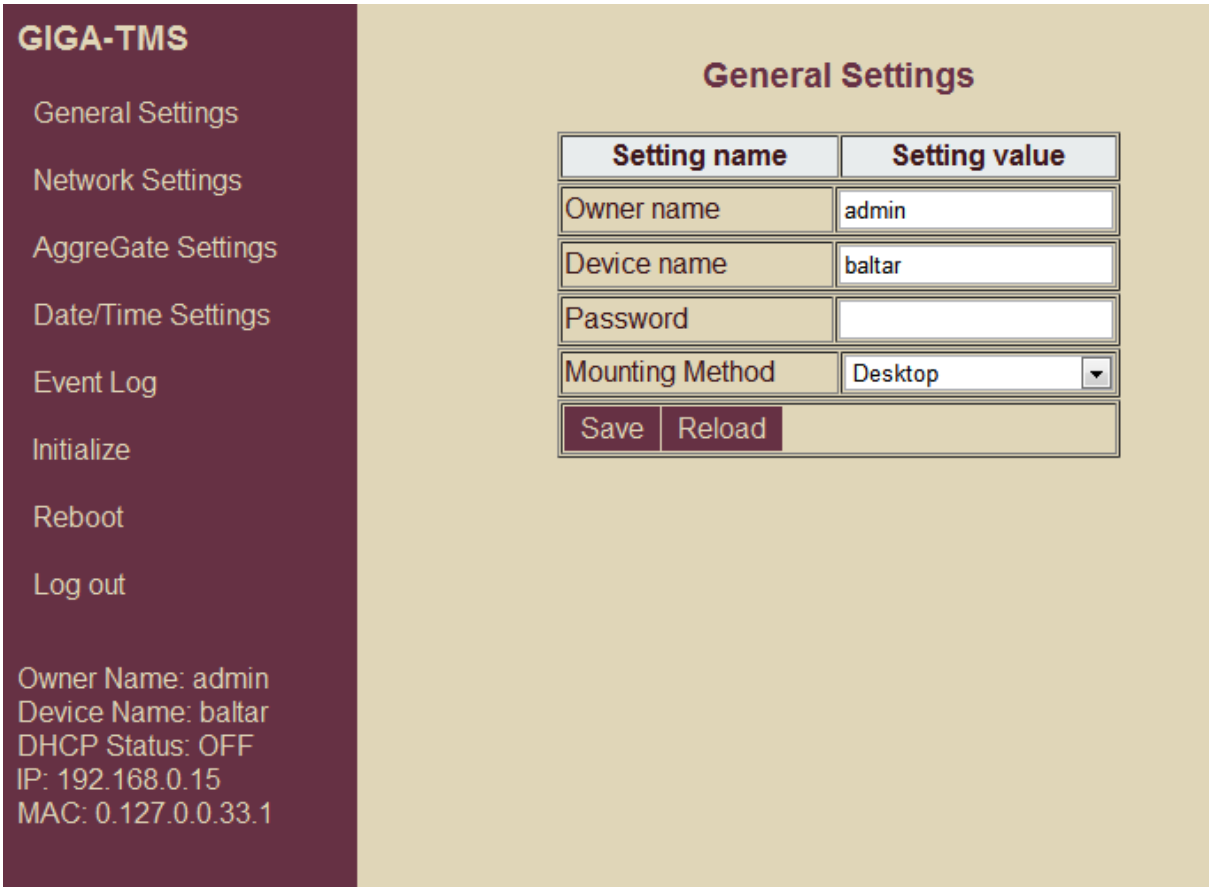

The main menu (on the left side) offers the following options:

- General Settings 23: For setting owner/device name, password and display style.
- Network Settings 24: For configuring IP address and other network parameters.
- AggreGate Settings 25: For configuring AggreGate 34 parameters.
- Date/Time Settings 26: For configuring current date/time and auto-synchronization with a time server.
- Event Log 26: For viewing, filtering and downloading event log records.
- Initialize 28: For resetting the terminal to its default configuration.
- Reboot 29: For restarting the terminal so that changes in settings can take effect.
- Log Out 29: For ending the web-based setup session.
- Information section: In the lower-left side of the Web administration menu, operational parameters of the device are listed. This is the same information as appears in the Information Screen on device startup 12.

On-Screen Information

When a Web-admin session is in progress, a small **H** (for HTTP) is displayed at the lower-left corner of the TR610 screen:

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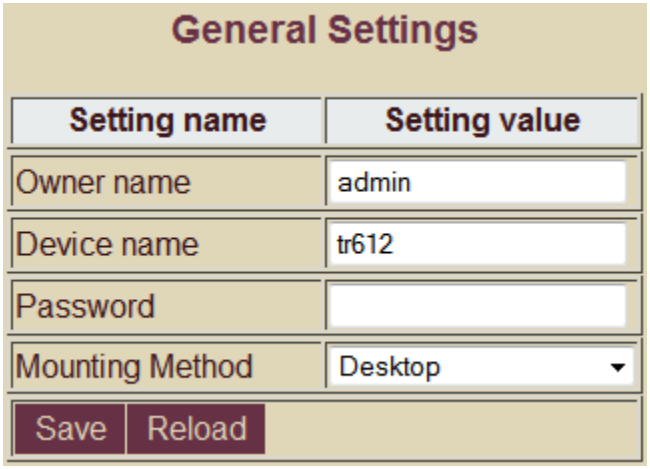
3.1.1 General Settings



This menu lets you configure the following:

Owner name: A meaningful name for the TR610's administrator. Also used in AggreGate.

Device name: A meaningful name selected for this specific TR610. Also used in AggreGate.

Password: The password used for logging into the Web interface.

Mounting Method: This is the orientation of the device (Desktop or Wall). It controls the direction of text on the display.

Once you have changed the settings as required, click **Save.** To make the settings apply, you must reboot 29 the device.

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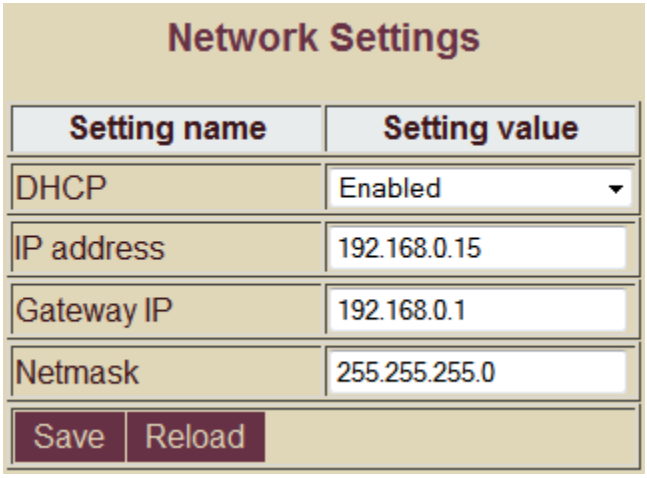
3.1.2 Network Settings



This menu lets you configure the following:

DHCP: Dynamic Host Configuration Protocol (DHCP) is used to obtain an IP address automatically within the network. With DHCP enabled and a suitable network setup, you would not have to manually set an IP address, Gateway IP or a netmask.

Just because the DHCP setting is **Enabled** does not mean it will necessarily work. If DHCP is enabled but fails for some reason (e.g, is not configured on the local subnet), the TR610 will keep trying to acquire an IP address using DHCP every few minutes.

IP address: This is the IP address for the TR610. It needs to be manually assigned only if DHCP is disabled. With DHCP enabled, this field displays the currently assigned address.

Gateway IP: This is the IP address for the gateway connecting the terminal's subnet with a larger network (usually the Internet). It is used for accessing time servers for automatic time synchronization 16, and also for accessing the AggreGate server, in case it is outside the current network segment.

Netmask: This is the netmask for the network on which the terminal is installed.

Once you have changed the settings as needed, click **Save.** To apply the settings, reboot 29 the device.

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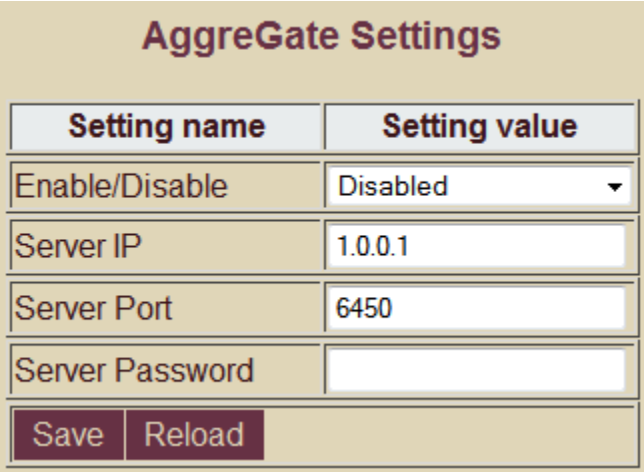
3.1.3 AggreGate Settings



These settings need to be configured only when working with an AggreGate server.

Enable/Disable: When this setting is enabled, the TR610 will attempt to connect to the AggreGate server upon booting. If you use AggreGate, this setting should be enabled.

Server IP: This is the IP address of an AggreGate server.

Server Port: This is the port on the AggreGate server at which the TR610 will attempt to log in, assuming a server is configured.

Server Password: This is the password the TR610 will use to log in to the AggreGate server. It can be different from the password used to log in to the Web Admin. Note that the password is not hidden either in the Web Admin nor in the On-Screen 31 menu.

Once you have changed the settings as needed, click **Save.** To apply the settings, reboot 29 the device.

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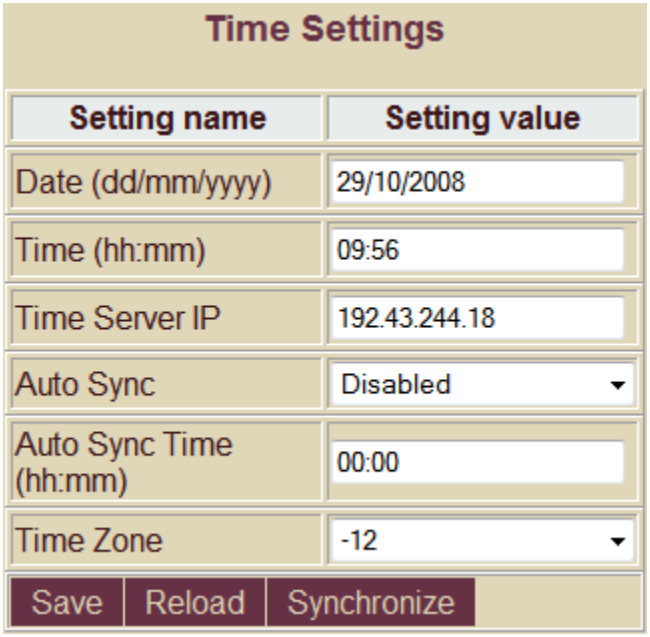
3.1.4 Date/Time Settings



This menu lets you configure the following:

Date: Enter the current date here, if you're not using the Auto Sync 16 feature. Setting a new date does not require a reboot.

Time: Enter the current time here, in 24-hour ("military time") format. So 4:00 pm would be 16:00. Setting a new time does not require a reboot.

Time Server IP: This is the IP address of an SNTP (Simple Network Time Protocol) server, used for synchronizing the time automatically. The value of this setting is preset and should normally work without requiring change. You can read more about this under Time Synchronization 16.

Auto Sync: This option enables or disables automatic daily synchronization with the SNTP server.

Auto Sync Time: This option sets the time of day in which automatic synchronization will take place, if enabled.

Time Zone: When using time synchronization, the terminal gets the time in GMT (UTC). For the time to be correct, the time zone for your geographic location must be set.

Synchronize (button): Initiates SNTP synchronization using the settings above.

Once you have changed the settings as needed, click **Save.** These settings apply immediately and do not require a reboot.

3.1.5 Event Log

The **Event Log** page lets you browse and filter the events accumulated by the terminal.

Event Filter

The **Event Filter** section lets you search the internal event log by date, event, and user ID. By default, it is empty, so everything is shown.

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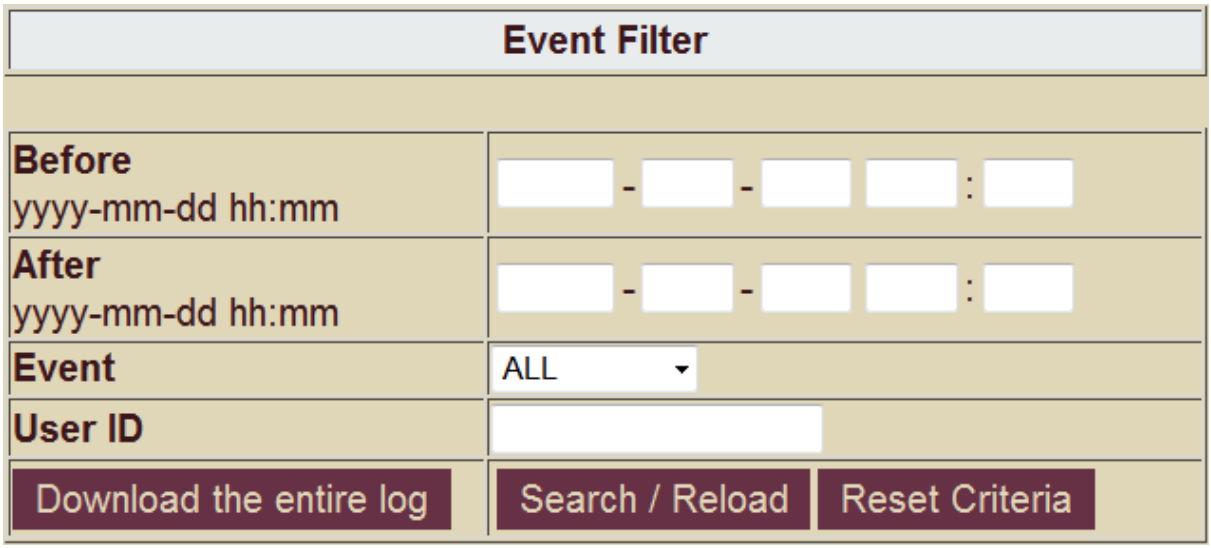

Before: This is used for finding events which were recorded before a certain date or time. You can fill in only part of the data (for example, put in the date but not the time).

After: Used for finding events which have been recorded after a certain date/time. Again, you don't need to fill out every field.

Event: Used for limiting the filter to a specific event type (In, Out, Temp In and Temp Out).

User ID: Used for searching events coming from a specific user. Wildcards are not supported - the user ID (last 7 digits of card number) has to be specified in full.

Download the entire log (button)**:** Downloads the current logfile (complete, with no filtering applied). Log file format is described here 56. Note that the log is not cleared once you download it - it remains on the TR610 as a backup, and new entries are appended to it. To clear the log, click **Clear Log** in the Event Log section (see below).

Search/Reload (button)**:** Searches the log according to the criteria specified above. If no criteria are specified, displays the complete log.

Reset Criteria (button)**:** Clears all criteria fields.

Event Log

The lower part of the Event Log screen displays event log records (either a complete listing, or a search result, as determined by the Filter above). The most recent entries are presented first.

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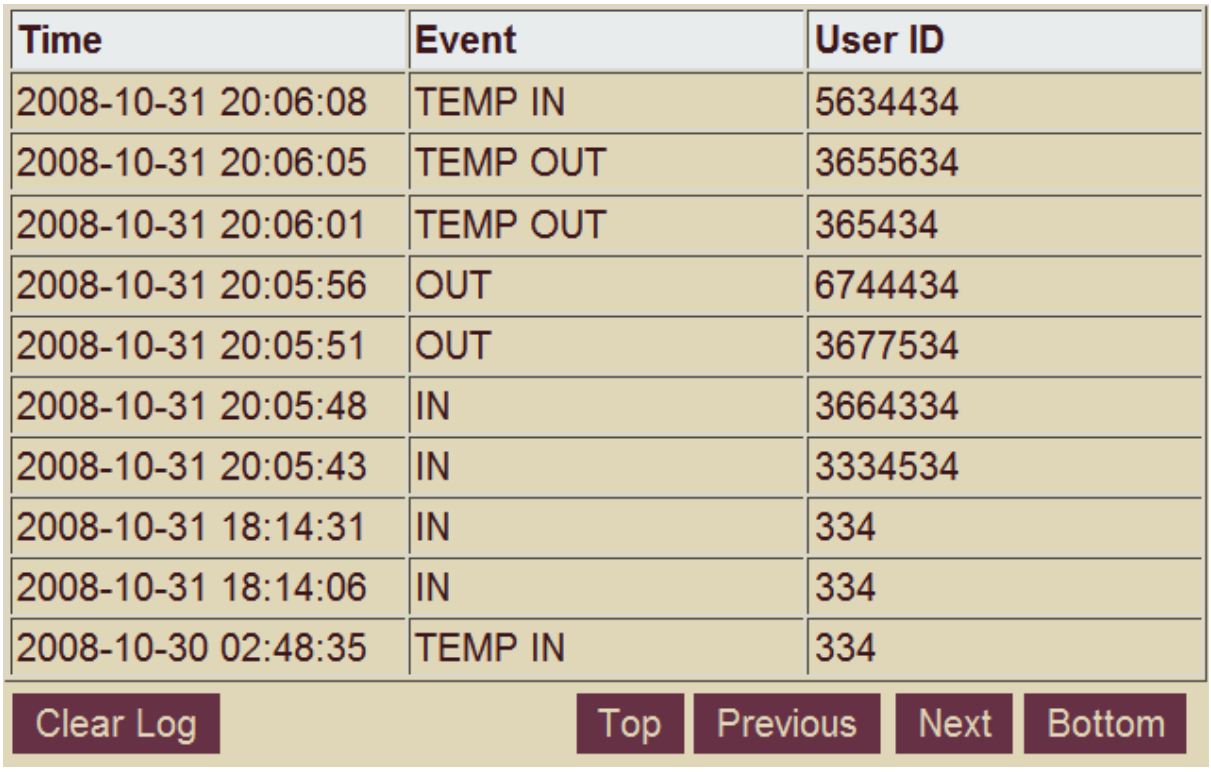

Time	Event	User ID
2008-10-31 20:06:08	TEMP IN	5634434
2008-10-31 20:06:05	TEMP OUT	3655634
2008-10-31 20:06:01	TEMP OUT	365434
2008-10-31 20:05:56	OUT	6744434
2008-10-31 20:05:51	OUT	3677534
2008-10-31 20:05:48	IN	3664334
2008-10-31 20:05:43	IN	3334534
2008-10-31 18:14:31	IN	334
2008-10-31 18:14:06	IN	334
2008-10-30 02:48:35	TEMP IN	334

Time: The time in which each event occurred, in yyyy-mm-dd hh:mm:ss format.

Event: Can be IN (Clock in), OUT (Clock out), TEMP IN (Temporary Clock In) or TEMP OUT (Temporary Clock Out).

User ID: The user ID (Rightmost 7 digits of RFID card number).

Clear Log: Delete all entries from the event log. This operation cannot be undone.

Top: Go to the beginning (most recent) page of the log or search results.

Previous: Go to the previous page (more recent than this one) of the log or search results. This button is shown only when there is more than one page to display.

Next: Go to the next page (containing older entries) of the log or search results. This button is shown only when there is more than one page to display.

Bottom: Go to the end (oldest page) of the log or search results.

3.1.6 Initialize

When selecting **Initialize** from the main Web Administration menu, the following confirmation dialog is displayed:

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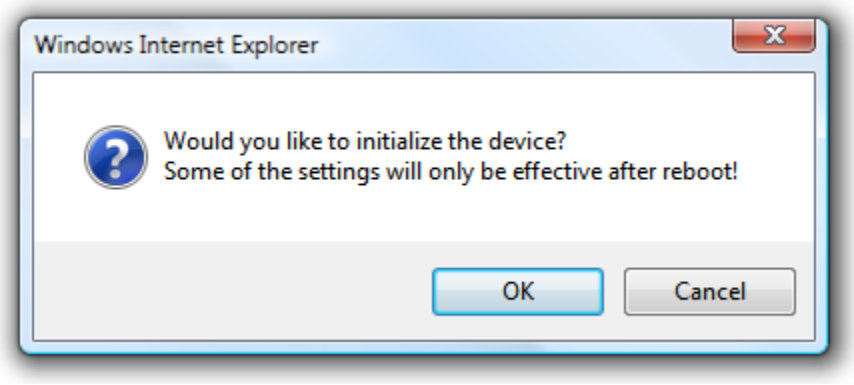
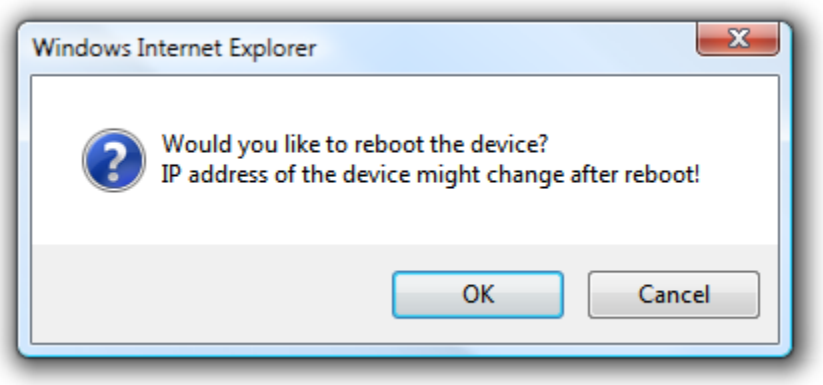

Windows Internet Explorer
Would you like to initialize the device?
Some of the settings will only be effective after reboot!
OK
Cancel

Clicking **OK** initializes 48 the device, and all settings are returned to their factory default values. The device will automatically reboot, to complete the initialization.

3.1.7 Reboot

When selecting **Reboot** from the main Web Administration menu, the following confirmation dialog is displayed:


Windows Internet Explorer
Would you like to reboot the device?
IP address of the device might change after reboot!
OK
Cancel

A reboot is needed for some settings to be applied.

The message box shown above says that the IP address of the device might change after reboot. This can happen if DHCP 24 is being used and the DHCP server decides to assign the terminal a new IP address. Of course, it will also change if you manually set a new IP address and then reboot the device.

Once the device starts up, try to access it again using the same IP address you used before. Most likely it will work. If it doesn't work, watch the terminal physically as it boots (you may need to disconnect and reconnect the power right when you're by the terminal) and note the IP address listed in the startup information screen 12.

3.1.8 Log Out

Clicking **Log Out** in the Web Admin interface will end the current session and bring you back to the login screen 21.

Note that log out may also occur automatically, after a certain period of inactivity. This is a security feature, meant to prevent unauthorized tampering with TR610 configuration.

You will also be logged out if anyone logs onto the device's on-screen setup menu 31 (see

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Configuration Priorities 43).

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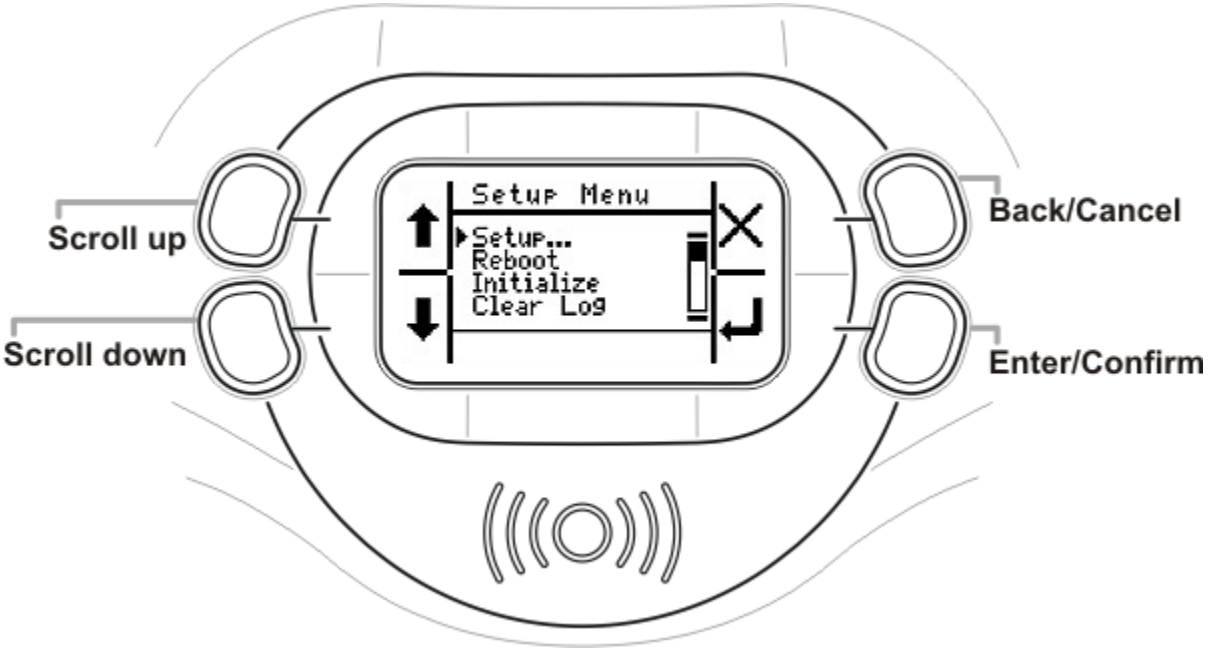
3.2 On-Screen Setup and Administration

To enter on-screen setup, scan the Master Card 12. You should then see the following screen:



Setup Menu Hierarchy

Below is the setup menu tree. Each setting is linked to its description in the Web Administration documentation.

Menu	Corresponding Web Admin Setting
Setup	
General	General Settings 23
Owner Name	General Settings 23 -- Owner Name
Device Name	General Settings 23 -- Device Name
Password	General Settings 23 -- Password
Mounting	General Settings 23 -- Mounting Method
Network	Network Settings 24
DHCP	Network Settings 24 -- DHCP
IP address	Network Settings 24 -- IP address
Gateway IP	Network Settings 24 -- Gateway IP
Netmask	Network Settings 24 -- Netmask
AggreGate	AggreGate Settings 25
Enable/Disable	AggreGate Settings 25 -- Enable/Disable

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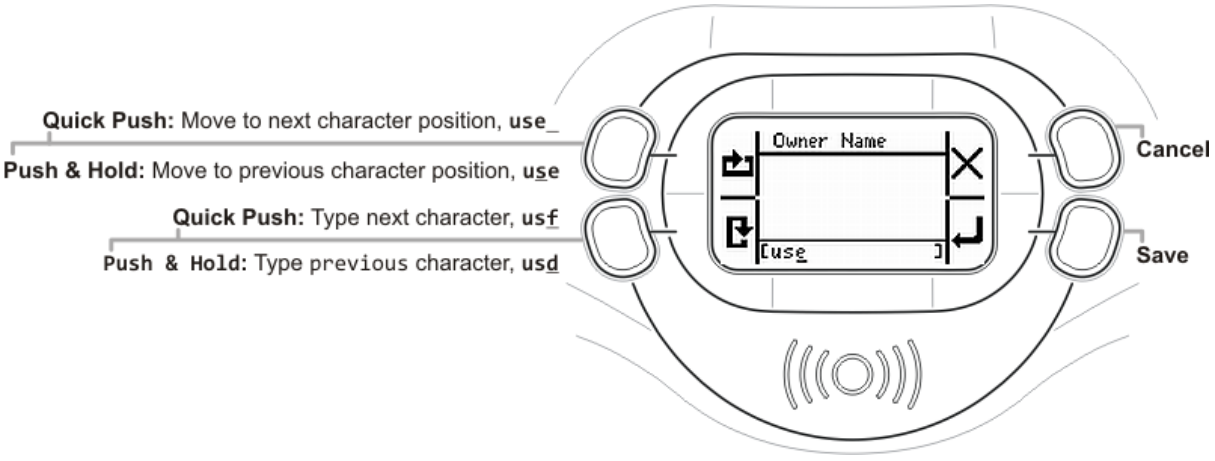
	Server IP	AggreGate Settings 25 -- Server IP
	Server Port	AggreGate Settings 25 -- Server Port
	Server Pwd	AggreGate Settings 25 -- Server Password
Date/Time		Date/Time Settings 26
	Auto Sync	Date/Time Settings 26
	Enable/Disable	Date/Time Settings 26 -- Auto Sync
	Sync Time	Date/Time Settings 26 -- Auto Sync Time
	Time Server	Date/Time Settings 26 -- Time Server IP
	Sync Now	Date/Time Settings 26 -- Synchronize (button)
	Time Zone	Date/Time Settings 26 -- Time Zone
	Set Date	Date/Time Settings 26 -- Date
	Set Time	Date/Time Settings 26 -- Time
Reboot		Reboot 29
Initialize		Initialize 28
Clear Log		Event Log 26 -- Clear Log (button)

3.2.1 Text Entry

Some menu options require you to enter numbers (IP addresses), or even strings (Owner/Device Name). It is recommended to set these options using the Web interface. However, in some cases that may not be possible. Thus, a system for entering text and numbers using the device's four hardware buttons has been developed:


Quick Push: Move to next character position, use_
Push & Hold: Move to previous character position, use
Quick Push: Type next character, usf
Push & Hold: Type previous character, usd
Owner Name
[use]
Cancel
Save

Button	Function
Top-left, quick push	Move to next character position
Top-left, push and hold	Move to previous character position
Bottom-left, quick push	Enter next character (a, then b, then c, etc)

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Bottom-left, push and hold	Enter previous character (c, then b, then a)
Top-right	Abort (exit without saving string)
Bottom-right	Save string and exit

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3.3 AggreGate Integration

Tibbo AggreGate is a complete device management solution that allows you to combine multiple terminals into a large system which can be administered as an integrated whole. At the heart of AggreGate is a powerful server, allowing multiple operators to access and work with multiple terminals at the same time.

The TR610 seamlessly interfaces with AggreGate. Once you set up the terminal to connect to AggreGate, it will continuously transmit log events to AggreGate as they are generated. With TR610 and AggreGate, your time and attendance data is available in real-time, all the time. You could also tie employee attendance information with other enterprise systems, such as the payroll system.

Being a client/server system, AggreGate has been designed to scale up to administer hundreds of terminals across large networks, including the Internet.

AggreGate itself falls outside the scope of this manual. It is an extensive, complex system, which has its own documentation -- see http://aggregate.tibbo.com/docs/. The AggreGate documentation also features easy-to-follow tutorials, and even an in-program wizard which guides you through basic setup operations. So if you're not sure what AggreGate is all about, go ahead and find out. The system is free to download and try.

The rest of this article assumes prior knowledge of AggreGate, and only serves as a short walk-through showing how to quickly set up and test your TR610 in AggreGate.

Connecting The TR610 to AggreGate

1. Configure the IP address and other network settings of TR610 as described here 14. Make sure they work by testing the Web Admin 21.
2. Get and install AggreGate LinkServer and AggreGate Client from http://aggregate.tibbo.com.
3. Note down the IP address of the computer running LinkServer, and make sure the TR610 can reach it (i.e, have them both on the same subnet, or configure the gateway settings 14 on the TR610).
4. Run AggreGate LinkServer.
5. Run AggreGate Client. As noted above, this article assumes prior knowledge. Nevertheless, we will verify the status of one single setting: Device Server Auto Registration. This setting allows LinkServer to listen for new devices and let them login automatically.
6. Within Client, right-click your username and select **Edit User Properties**:

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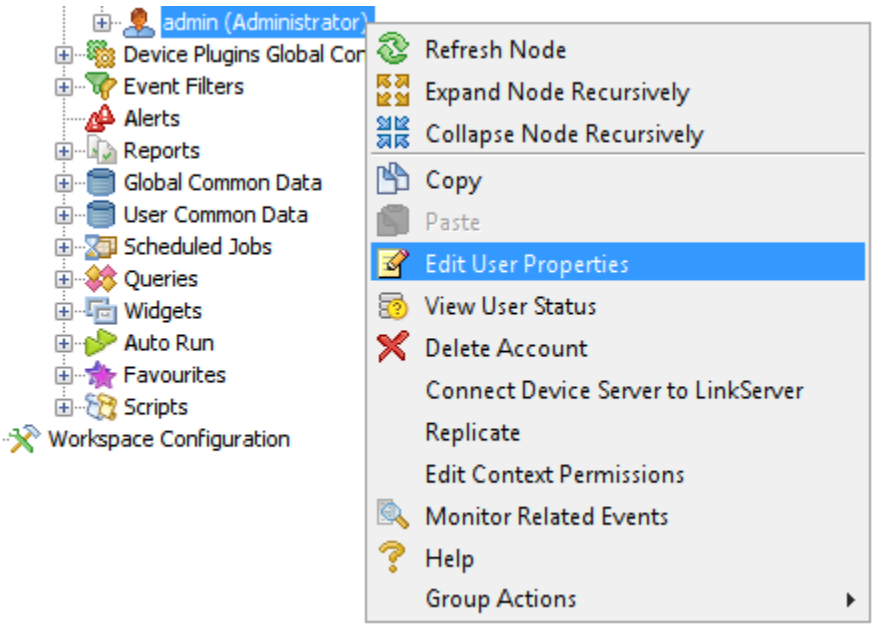

7. In the **User Properties** dialog, make sure **Enable Automatic Registration of Device Servers** (the last setting in the dialog) is checked.

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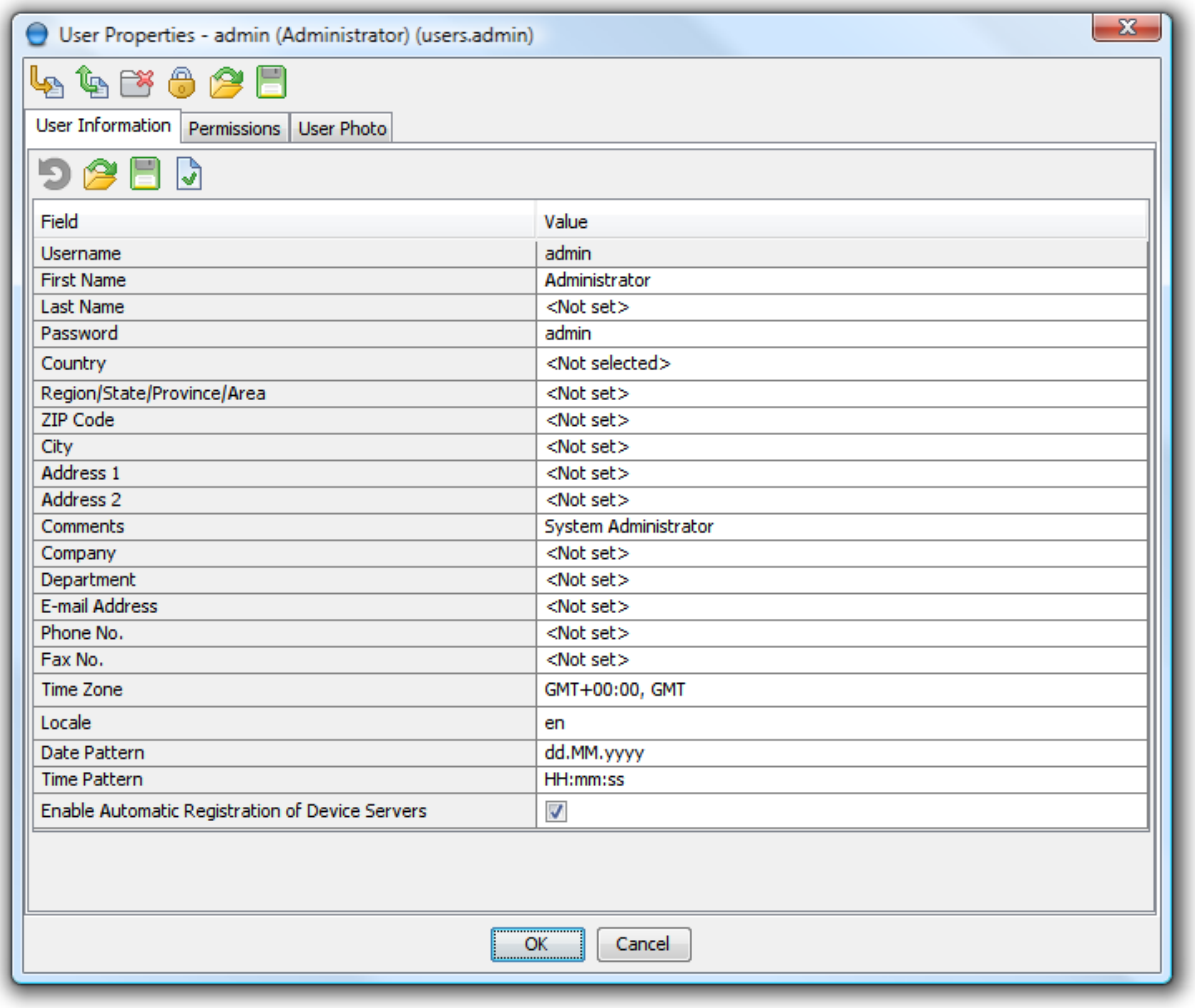
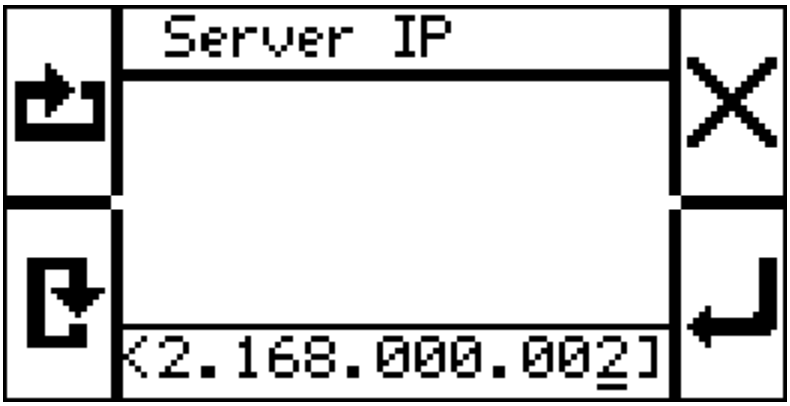


8. Click **OK**. You may close AggreGate Client at this point, but leave LinkServer running.

9. Now it's time to configure the TR610. Go into the on-screen menu. Navigate to **Setup > AggreGate > Server IP** and enter the IP of your LinkServer. For help entering text strings using the on-screen menu, see here 32.



10. Now go to **Server Port** and make sure it is **6450** (default, unless you changed it on the server for some reason).

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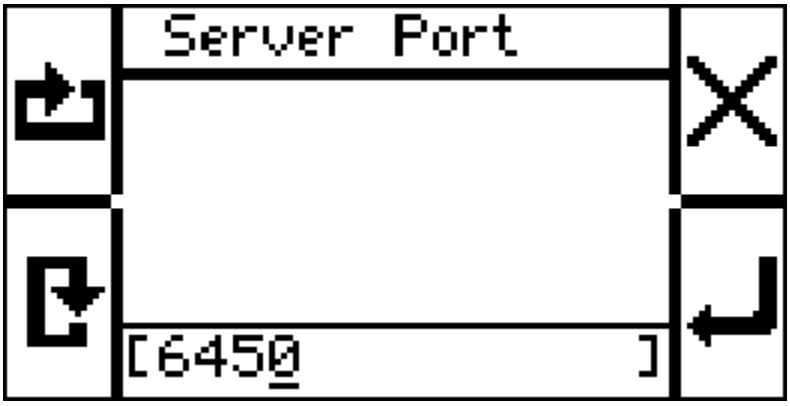
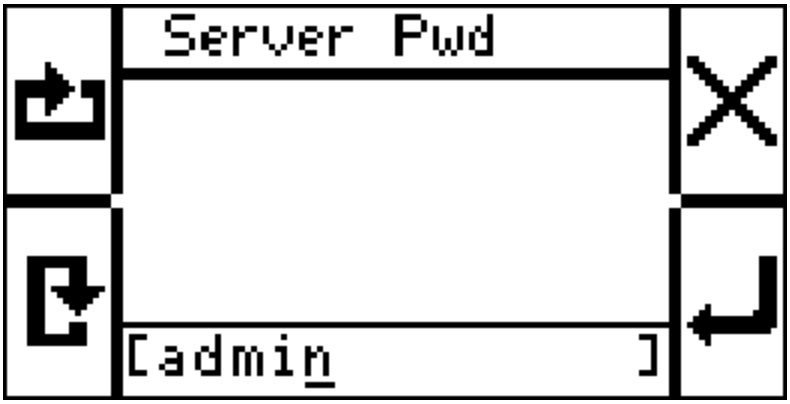
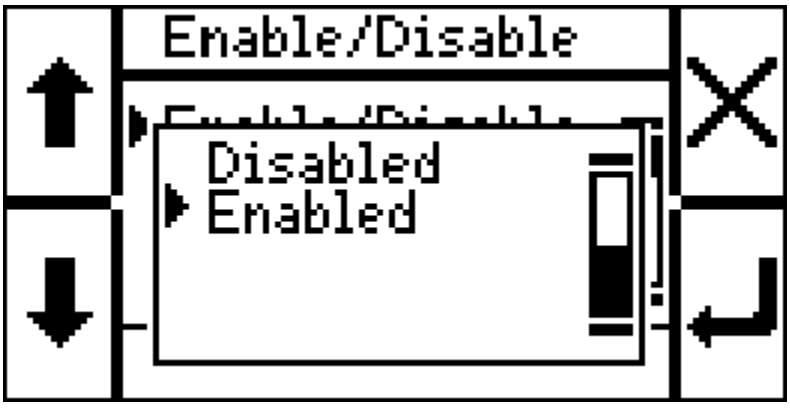


11. Now go to **Server Pwd** and enter the password the TR610 should use when it logs onto the LinkServer. By default, this is **admin**.



12. Go to **Enable/Disable** and select **Enabled**.



13. Now set the proper Owner Name. Owner Name should be the same as your LinkServer username (default is **admin**). Go to **Setup > General > Owner Name** and enter your LinkServer username.

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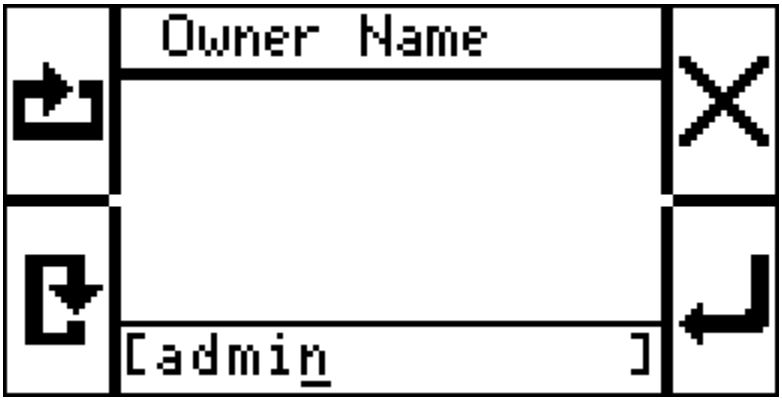
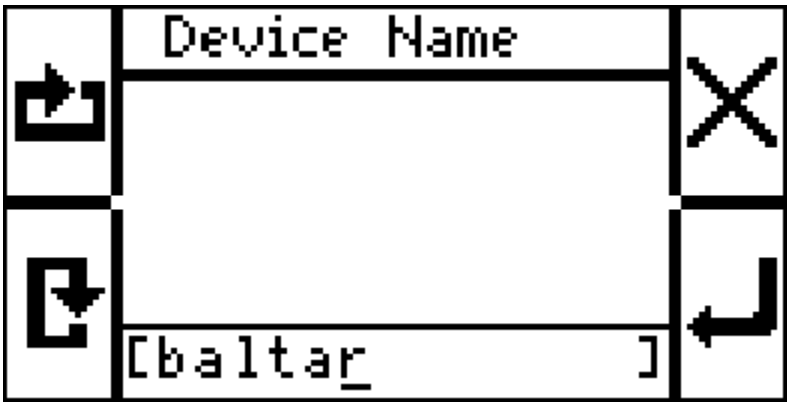
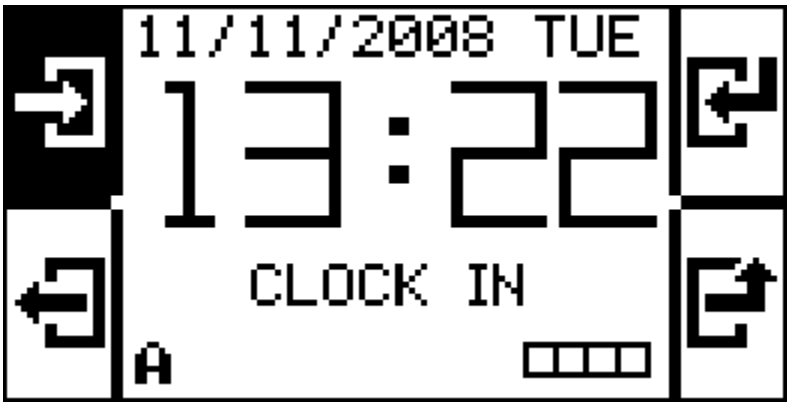


14. Now go to **Setup > General > Device Name** and configure a name for your device. Each of your TR610 devices should have a unique name.



15. Go to the main on-screen menu and select **Reboot**.

16. Once the device reboots, it should automatically connect to LinkServer. Watch the terminal's screen for the **A** in the lower-left corner:



When you see the **A**, it means an AggreGate connection is active. If, for some reason, the TR610 does not connect to AggreGate, test the IP address, subnet mask and gateway settings, and the AggreGate-specific settings.

17. Run AggreGate Client and you should see your TR610 (with the name you selected) in the system tree:

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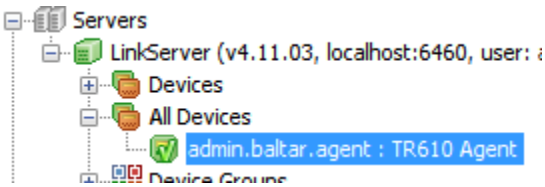
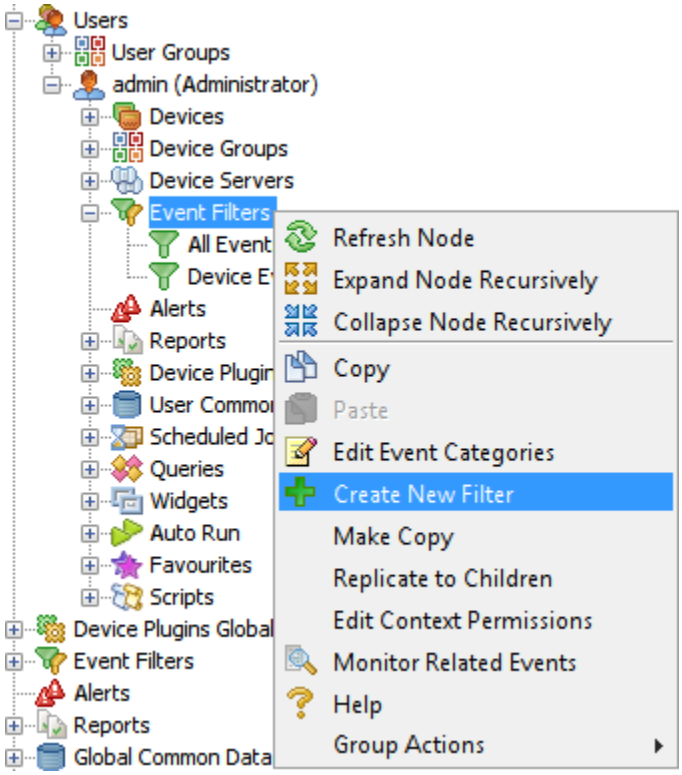


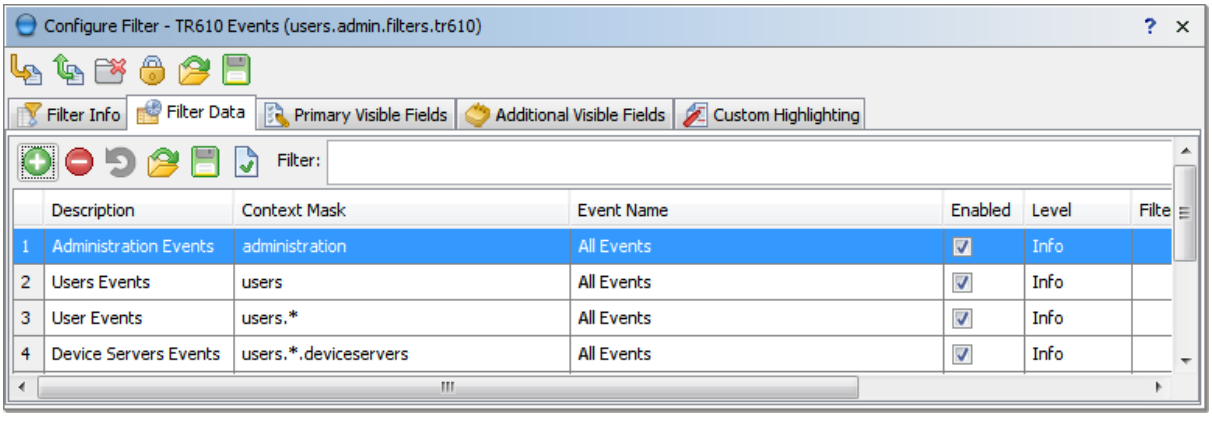
Testing The Connection

Now that the device appears to be connected, let's test it by creating an event filter to show all users logging in or out using the TR610.

1. Go to **Event Filters**, right-click and select **Create New Filter**.



2. By default, the Filter Data table is full of criteria we don't need right now.



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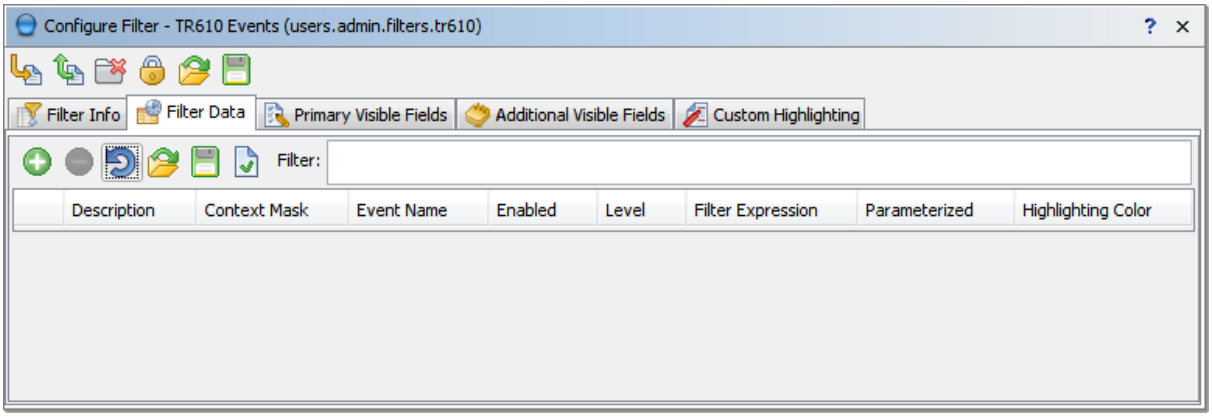
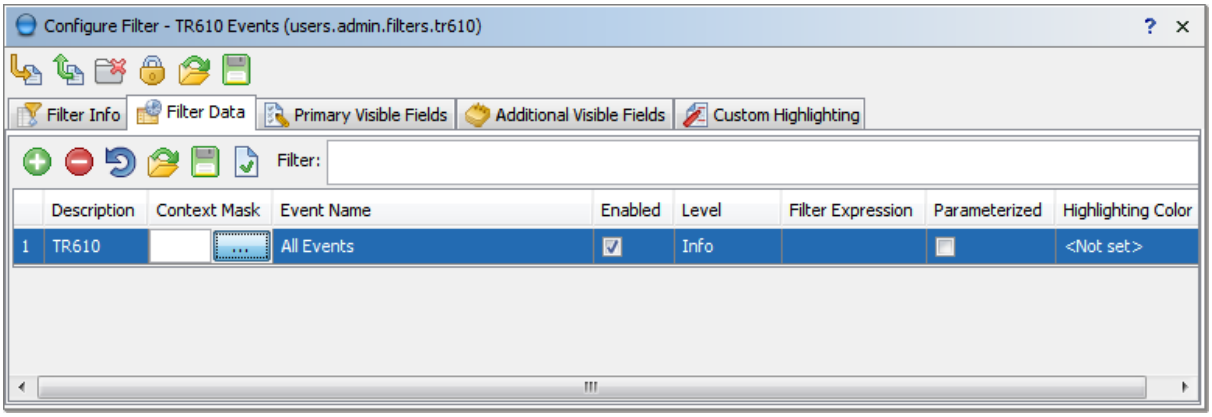
3. Remove them all by clicking the red minus icon:



4. Add a single line. Enter something informative in the description (such as "TR610", for example). Next, you have to specify a Context Mask to which the filter should apply. Rather than typing the mask in manually, click the "**...**" button.



5. This pops up a selection tree. Navigate as shown below (to the *device*.**agent** - not just *device*. Then click OK.

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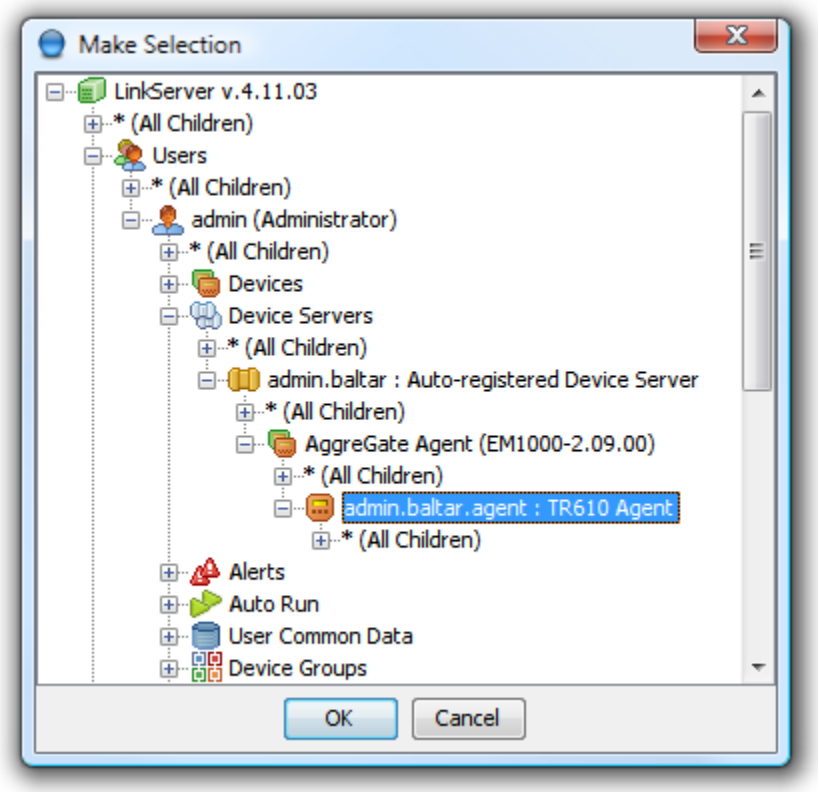
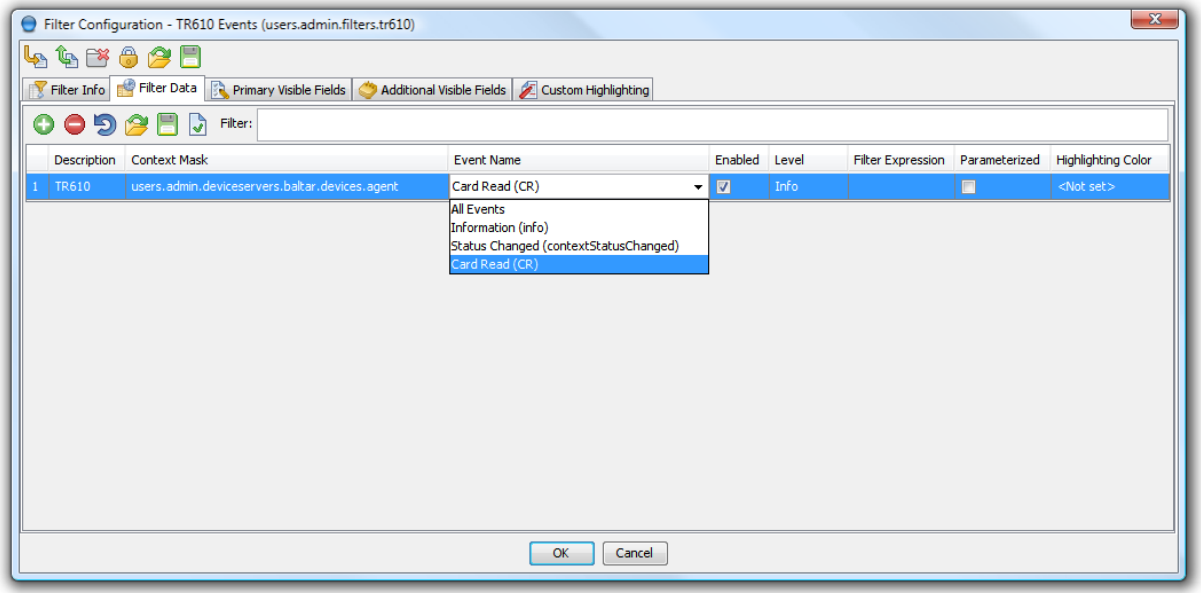


6. It is now time to specify the event name to be filtered. Let's filter all **Card Read** events:



7. That's it. Save the filter by clicking .

8. Now pop up the event log and scan a card on the TR610. It should show up immediately.

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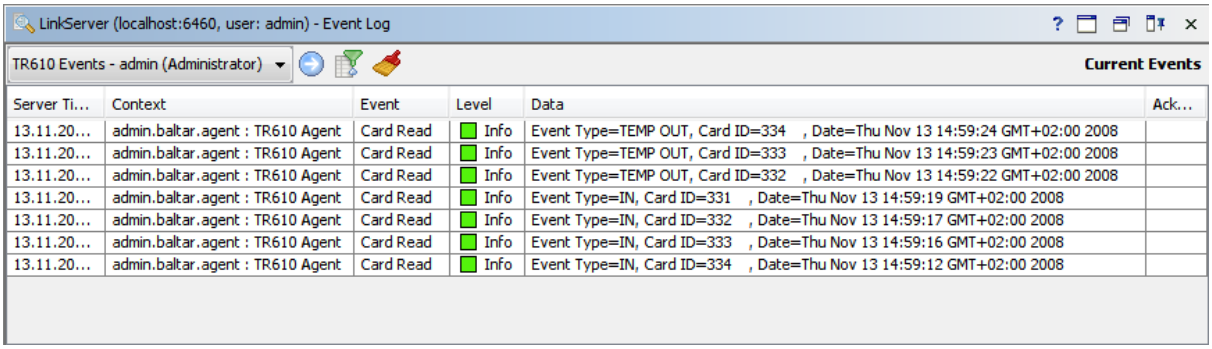

Server Ti...	Context	Event	Level	Data	Ack...
13.11.20...	admin.baltar.agent : TR610 Agent	Card Read	Info	Event Type=TEMP OUT, Card ID=334 , Date=Thu Nov 13 14:59:24 GMT+02:00 2008	
13.11.20...	admin.baltar.agent : TR610 Agent	Card Read	Info	Event Type=TEMP OUT, Card ID=333 , Date=Thu Nov 13 14:59:23 GMT+02:00 2008	
13.11.20...	admin.baltar.agent : TR610 Agent	Card Read	Info	Event Type=TEMP OUT, Card ID=332 , Date=Thu Nov 13 14:59:22 GMT+02:00 2008	
13.11.20...	admin.baltar.agent : TR610 Agent	Card Read	Info	Event Type=IN, Card ID=331 , Date=Thu Nov 13 14:59:19 GMT+02:00 2008	
13.11.20...	admin.baltar.agent : TR610 Agent	Card Read	Info	Event Type=IN, Card ID=332 , Date=Thu Nov 13 14:59:17 GMT+02:00 2008	
13.11.20...	admin.baltar.agent : TR610 Agent	Card Read	Info	Event Type=IN, Card ID=333 , Date=Thu Nov 13 14:59:16 GMT+02:00 2008	
13.11.20...	admin.baltar.agent : TR610 Agent	Card Read	Info	Event Type=IN, Card ID=334 , Date=Thu Nov 13 14:59:12 GMT+02:00 2008	

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3.4 Configuration Priorities

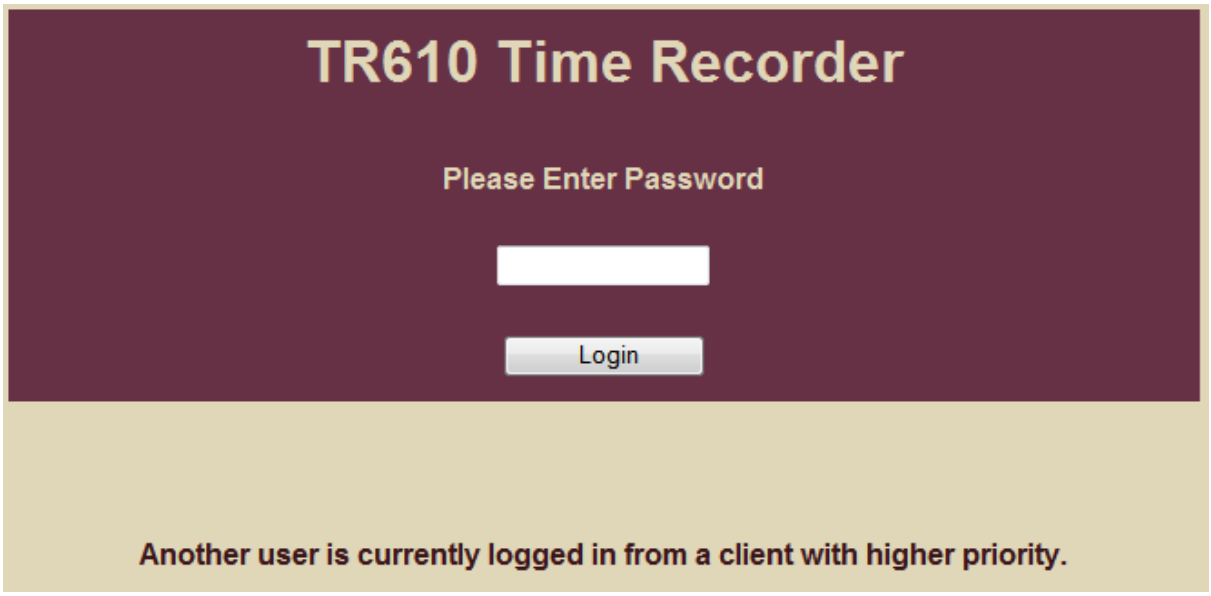
Since there are three main ways to access TR610 configuration and change settings, conflicts need to be accounted for.

For example, what happens if an on-screen configuration session is in progress, and someone tries to access device settings using AggreGate at the same time?

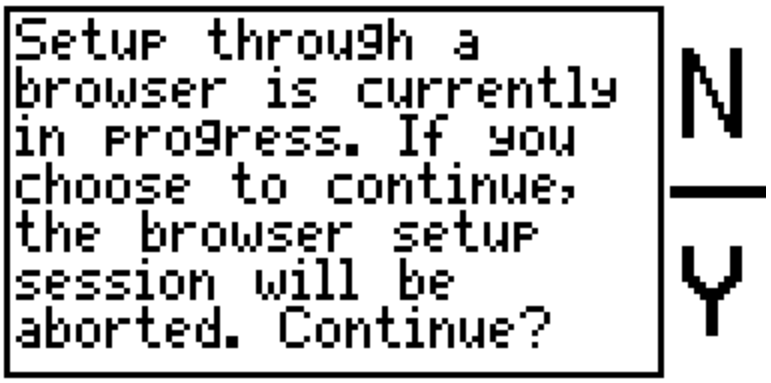
The following configuration priorities are used:

1. **On-screen session:** This is the top priority. While an on-screen configuration session is in progress, you cannot log in using the Web Administration interface, and the terminal is not connected to AggreGate.

For example, if you attempt to access the Web Administration interface while an on-screen configuration session is in progress, you will get the following error:


TR610 Time Recorder
Please Enter Password
Login
Another user is currently logged in from a client with higher priority.

When a Web Interface session is already in progress and someone attempts to open an on-screen session, the following warning message is shown on the TR610 LCD:



Selecting **Y** will "kick" the Web user out and allow you to use the on-screen interface.

2. **Web Interface:** Configuration using the Web interface has the second priority level. While a Web

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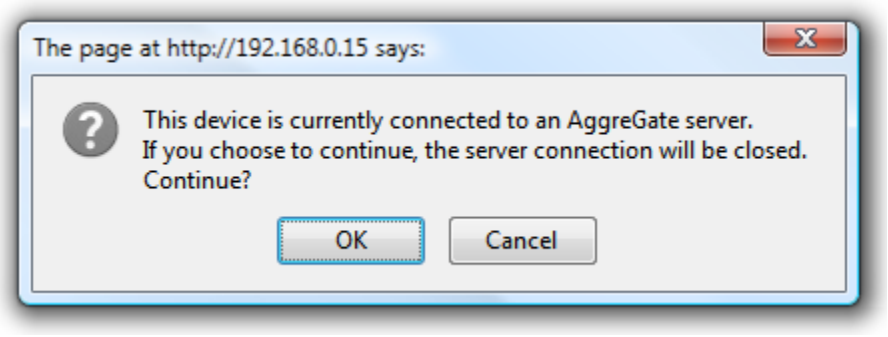
Interface session is in progress, AggreGate may not be used to configure TR610 settings. If you attempt to open the Web interface while the TR610 is connected to AggreGate, the following dialog will be displayed:

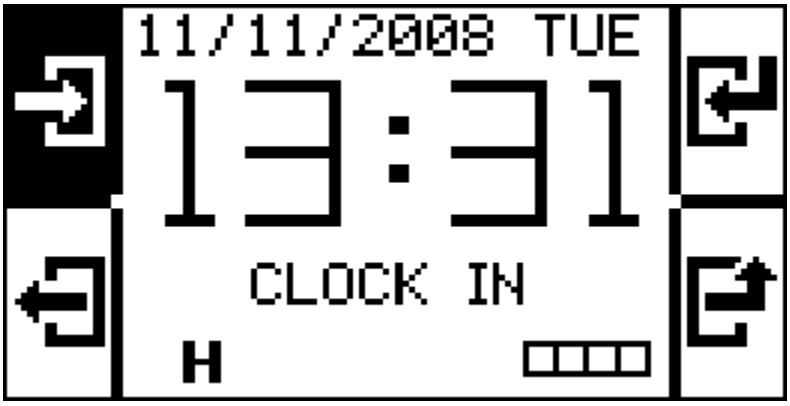

The page at http://192.168.0.15 says:
This device is currently connected to an AggreGate server.
If you choose to continue, the server connection will be closed.
Continue?
OK
Cancel

3. **AggreGate:** The AggreGate link has the lowest priority level. While any other form of configuration is in progress, the terminal is disconnected from the AggreGate server. Once a higher-level configuration session is ended, the terminal re-establishes connection with AggreGate (if such a connection was configured).

On-Screen Information

The TR610 display shows the letter **A** in the lower-left corner when the terminal is connected to AggreGate, and the letter **H** (for HTTP) when a Web Admin session is in progress:

Connected to AggreGate.



Web admin session is in progress.

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Part

4 Reference

These topics are for use as reference, and may not be needed in everyday use of the TR610.

Initializing the Device 48 - Shows how to initialize the device back to default factory settings.

Changing the TR610's Functionality 51 - A short overview of how the TR610 may be customized.

Uploading New Firmware 52 - Showing how to upgrade the TR610 with new firmware.

Event Log File Format 56 - Explains the structure of the event log file, for importing into time and attendance software.

I/O Connector Pin Assignment & Cable Wiring 57 - Shows all connectors and their pinouts.

Specifications 59 - Device hardware specifications.

Update History 60 - History of changes since initial release of TR610 manual.

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4.1 Initializing the Device

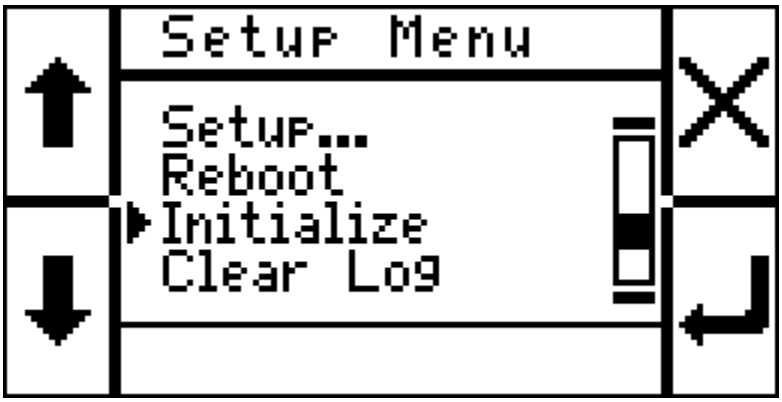
Sometimes you may lose your Master Card 12, or encounter some other circumstances (bugs in modified firmware 51, etc) which might require you to initialize the TR610 and 'start over'.

There are three main ways* to initialize the device:

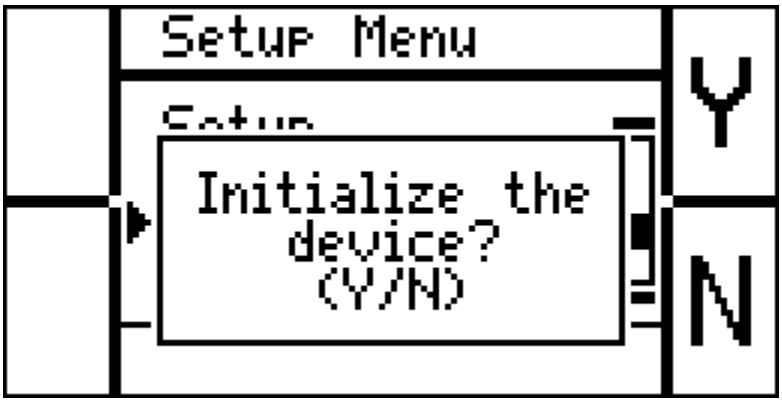
Using the Menu System

To use this method, you need a Master Card which works.

1. Scan your Master Card to go into the Setup menu.
2. Scroll down to **Initialize**:



3. Hit the lower-right (**Enter**) button. You will get a confirmation prompt.



4. Hit the top-right (**Y**) button.
5. The device will now initialize and reboot.
6. Upon rebooting, the device will show the Master Card registration screen:

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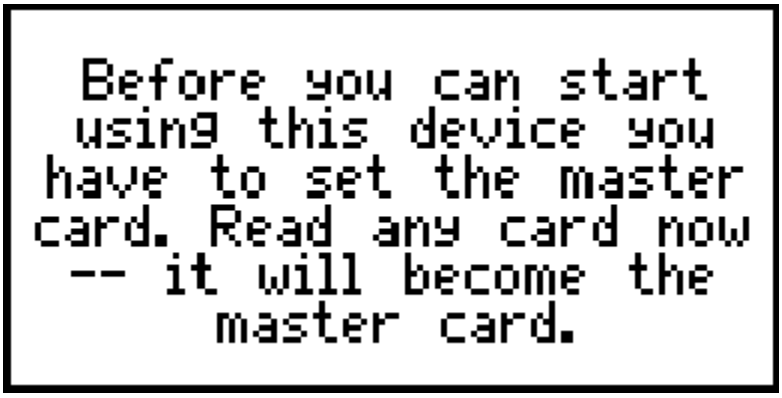
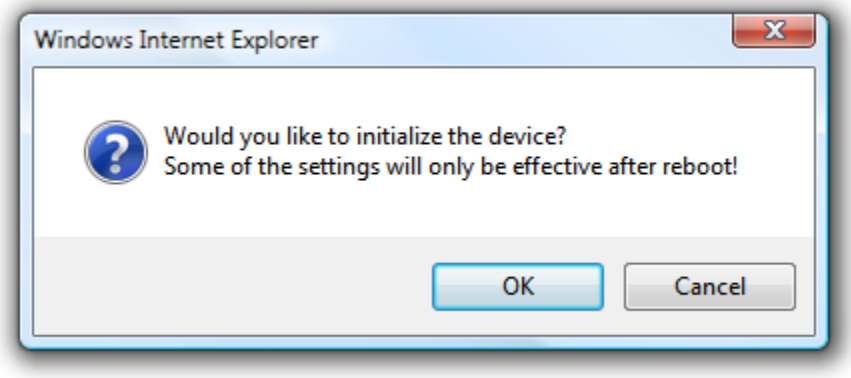


Using the Web Administration Interface

This is a software-based method which can used in case of loss of the Master Card.

1. Log onto the Web Administration 21 interface.
2. In the left-column menu, click **Initialize**.
3. The following prompt will be displayed:


Windows Internet Explorer
Would you like to initialize the device?
Some of the settings will only be effective after reboot!
OK
Cancel

4. Click **OK** to initialize the device.

5. **NOTE:** You will now need to physically go to the device, because as soon as it initializes, it requires a new Master Card to be scanned. Until that is done, the device may not be used. Moreover, the first card scanned is taken as a Master Card, so if an employee inadvertently scans their card before you scan the Master Card, the employee's card will become the new Master Card (and the device would have to be initialized yet again, to set the proper Master Card).

Using the MD Button

This is a hardware-based method you can use if you lose the Master Card and also are unable to access the Web Administration interface.

1. Open up the TR610.
2. Inside, there are two small buttons: RST (left) and MD (right).

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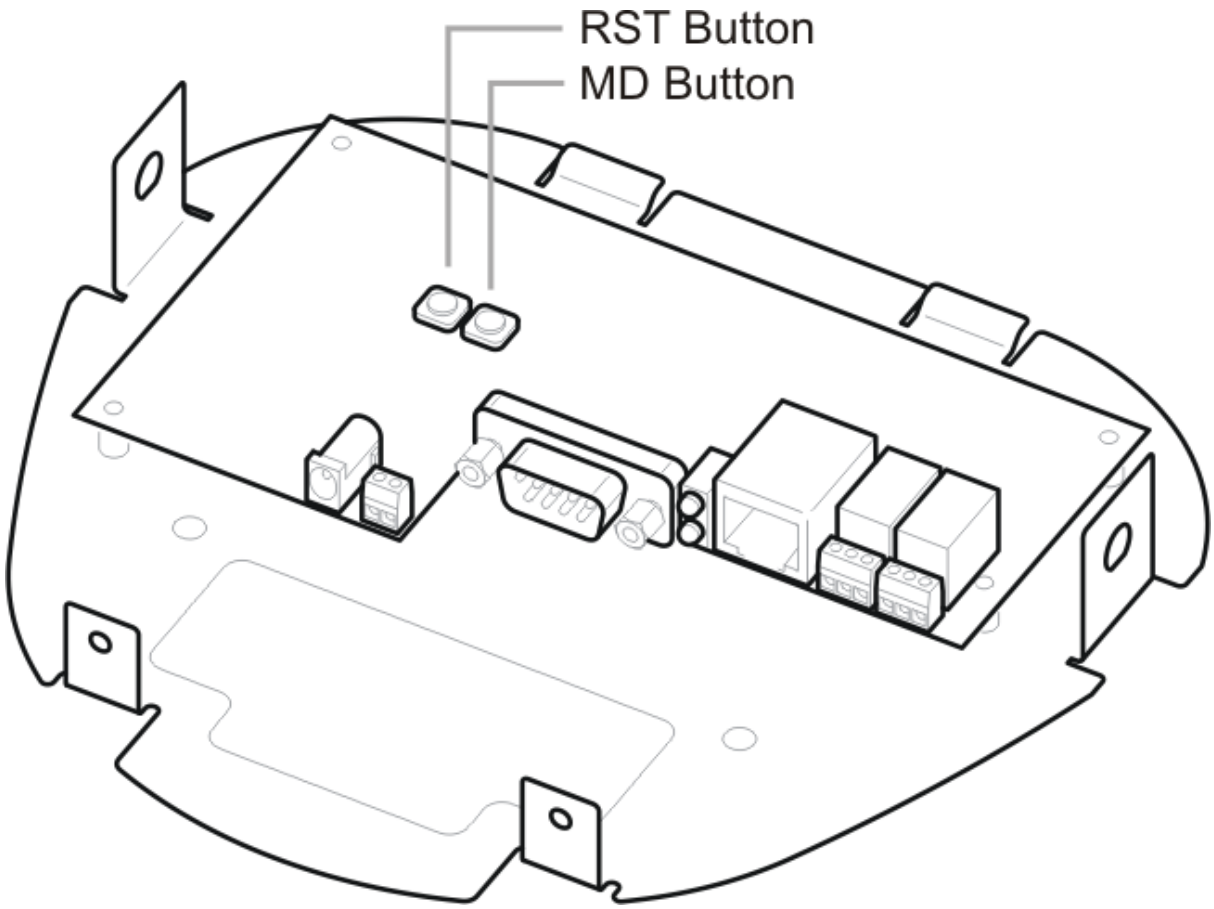

3. Push the MD button for three seconds. The LED pattern near the button should change. Now release the button.
4. The device will now reboot and show the Master Card registration screen 12.

** The device could also be initialized using TIDE, but this falls beyond the scope of this manual.*

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4.2 Changing the TR610's Functionality

The TR610 is a programmable terminal, and its internal application can be changed, extended and customized. You can tailor it to your (or your client's) exact needs. For example, you could:

- Alter the icons and logo displayed.
- Change the appearance of the Web Interface.
- Add and remove menu options.
- Change the beeps, or eliminate them completely.

These are just a few of the things you could do. You are not limited to a pre-defined set of customizations.

The TR610 firmware is open-source, and is written in Tibbo BASIC, so it's easy to understand.

You can download the firmware source files and modify them using readily-available development tools.

Sounds interesting? Click here for more information.

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4.3 Uploading New Firmware

The procedure for uploading new firmware described below is meant for administrators who wish to load the terminal with a new or different firmware binary (.bin). Attention Tibbo BASIC developers: If you wish to upgrade TiOS separately from the application, or make changes to the applications, see Changing the TR610's Functionality 51.

When To Upload New Firmware

Uploading new firmware should usually be done under one of the following circumstance:

1. An upgraded application firmware has been officially released, with extended functionality or bugfixes.

2. You have received new firmware from an OEM, customizing the device for your needs.

3. Your device is malfunctioning and an initializing 48 it did not solve the problem.

Before You Start

The upload process requires the following:

1. Tibbo DS Manager, which is a part of the TDST (Tibbo Device Server Toolkit). Please download it from here and install it before proceeding.

2. The firmware file you intend to upload the device. This can be obtained from your reseller, or directly from GIGA-TMS.

3. A female-female serial cable for connecting the TR610 to the computer. The port pinout is here 57. A "regular" RS232 crossover cable should work.

4. The included screwdriver for opening the TR610.

The Upload Process

1. Bring the TR610 close to your computer. Unmount it from the wall if needed.

2. Open the TR610, as shown under Hardware Installation 8.

3. Connect the serial cable to your computer's COM port, and to the COM port on the TR610. Leave the TR610 open - you will need to press a button inside the device later on.

4. Run DS Manager, switch to the Serial Access tab and click the COM port to which the TR610 is connected:

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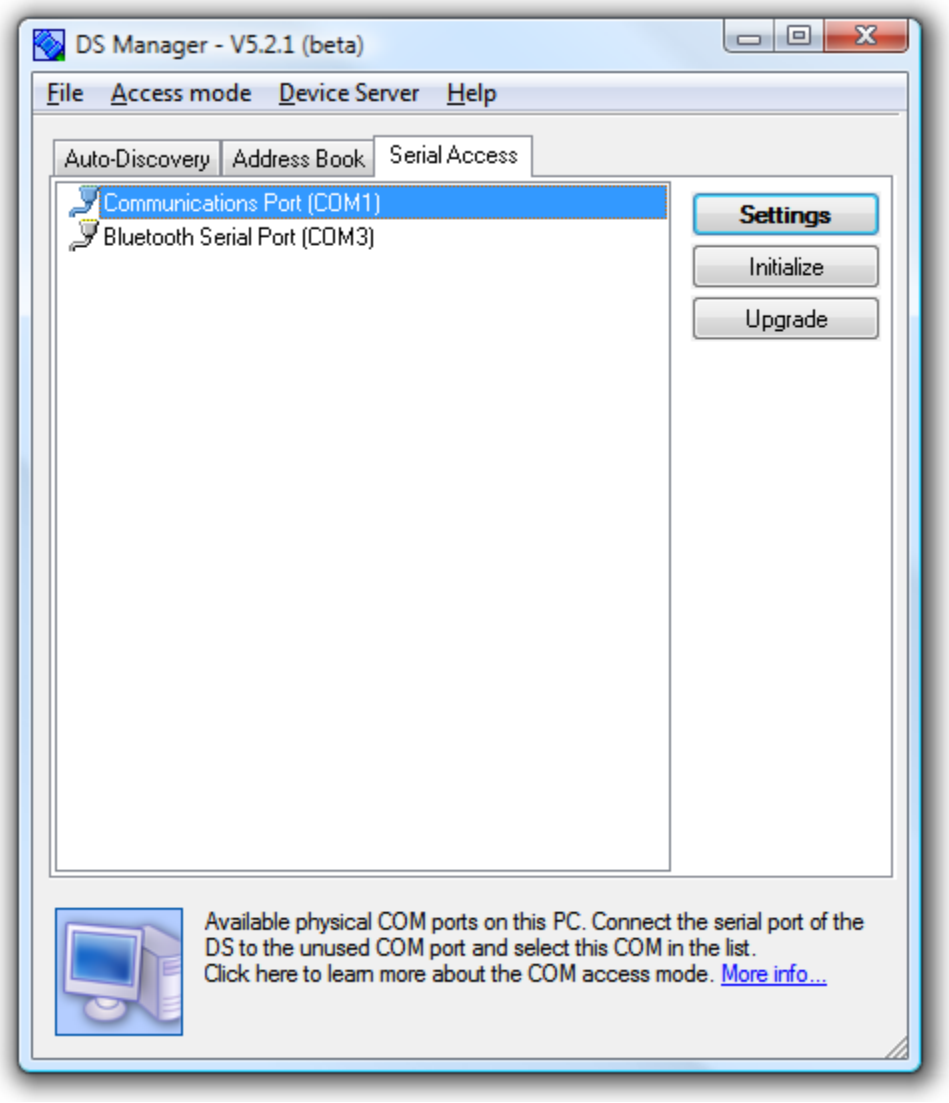
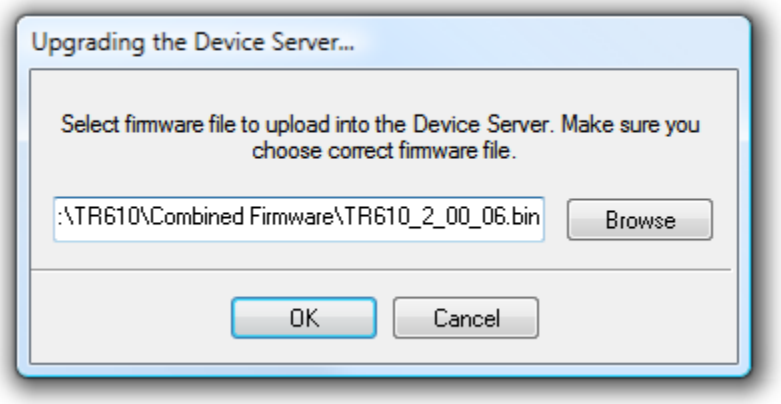

DS Manager - V5.2.1 (beta)
File
Access mode
Device Server
Help
Auto-Discovery
Address Book
Serial Access
Communications Port (COM1)
Bluetooth Serial Port (COM3)
Settings
Initialize
Upgrade
Available physical COM ports on this PC. Connect the serial port of the DS to the unused COM port and select this COM in the list.
Click here to learn more about the COM access mode. More info...

5. Click the **Upgrade** button. The following dialog will be shown. Click **Browse** and select the firmware file you wish to upload.


Upgrading the Device Server...
Select firmware file to upload into the Device Server. Make sure you choose correct firmware file.
:\TR610\Combined Firmware\TR610_2_00_06.bin
Browse
OK
Cancel

6. Click **OK**. The following dialog will be shown:

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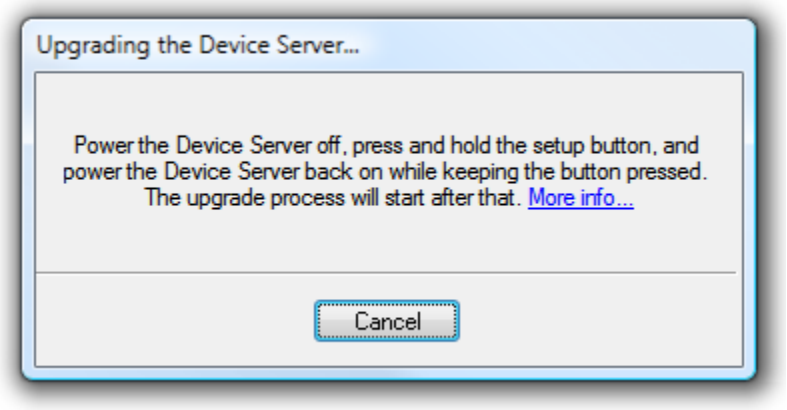
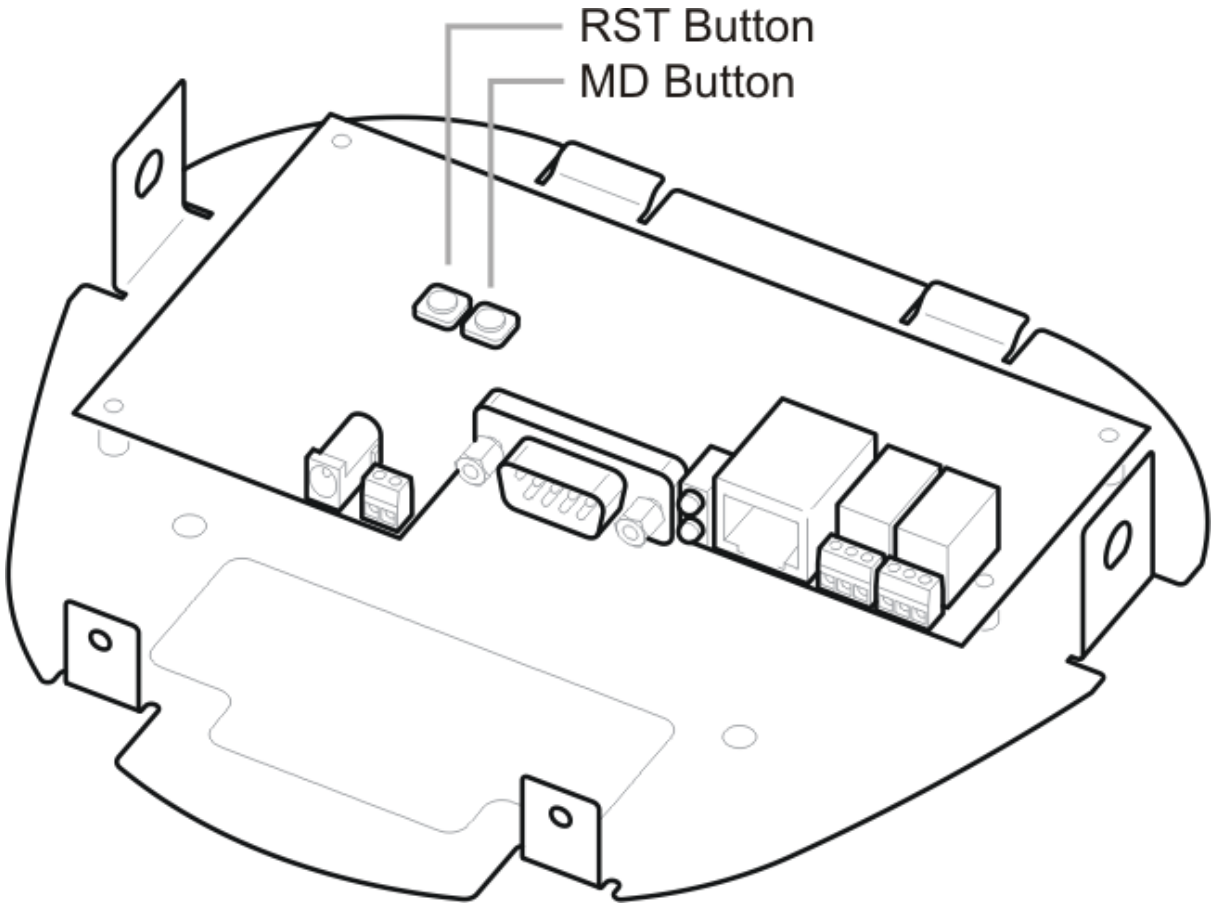

Upgrading the Device Server...
Power the Device Server off, press and hold the setup button, and power the Device Server back on while keeping the button pressed. The upgrade process will start after that. More info...
Cancel

7. Look at the open TR610 on your desk, and visually locate the small **MD** and **RST** buttons on the PCB.



8. Now press the **RST** button and hold it pressed. While still pressing it, press the **MD** button and hold it as well. Now let go of the **RST** button and leave **MD** pressed. The device will boot with **MD** pressed, which will put it into firmware upgrade mode. After a moment, the following progress dialog will be shown, and you can let go of the **MD** button.

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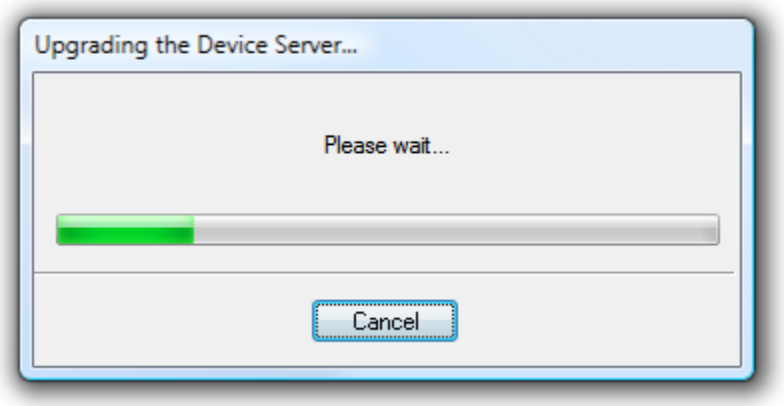
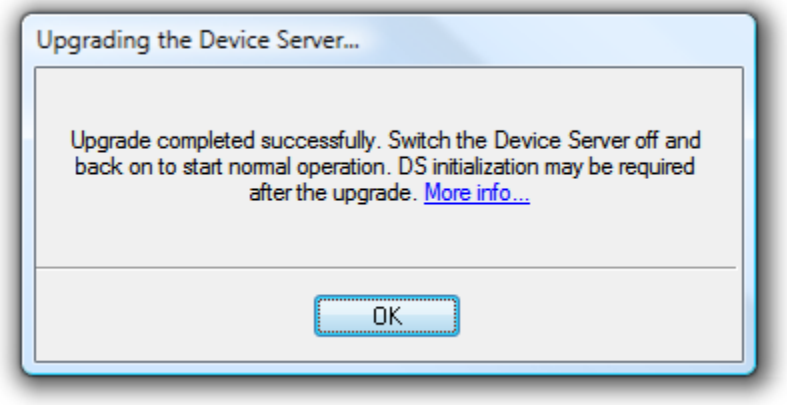


9. Upon completion of the process, the following dialog will be shown:


Upgrading the Device Server...
Upgrade completed successfully. Switch the Device Server off and back on to start normal operation. DS initialization may be required after the upgrade. More info...
OK

10. Now press the RST button again. The TR610 should boot up using the new firmware. At this point, initializing 48 the device is recommended.

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4.4 Event Log File Format

The Event Log file contains records accumulated in the terminal's memory. It is downloaded using the Web Interface 26.

Following is a sample of log file output:

```
2008-11-04 08:54:07	0	745884
2008-11-04 09:03:49	0	324984
2008-11-04 09:05:51	0	197874
2008-11-04 09:07:57	0	654793
2008-11-04 12:15:01	3	324984
2008-11-04 12:27:02	3	197874
2008-11-04 12:29:03	3	654793
2008-11-04 13:05:04	2	654793
2008-11-04 13:12:05	2	197874
2008-11-04 13:18:06	2	324984
2008-11-04 17:12:06	1	745884
2008-11-04 18:45:07	1	197874
2008-11-04 18:52:08	1	654793
2008-11-04 19:05:54	1	324984
```

The fields are delimited (separated) using tabs. Following are the fields within a single record:

Date	Time	Event	Card ID
`2008-11-04`	`08:54:07`	`0`	`745884`
In yyyy-mm-dd format.	In hh:mm:ss format.	**0** = Clock In **1** = Clock Out **2** = Temp. Clock In **3** = Temp. Clock Out	Card ID. Limited to last 7 digits of card. (RFID cards used by this terminal actually have 10 digits, but first 3 digits are discarded.)

Each record begins with a NULL character due to internal memory management (the NULL character is used as a marker by the TR610). The character may be removed on the computer once the file has been downloaded.

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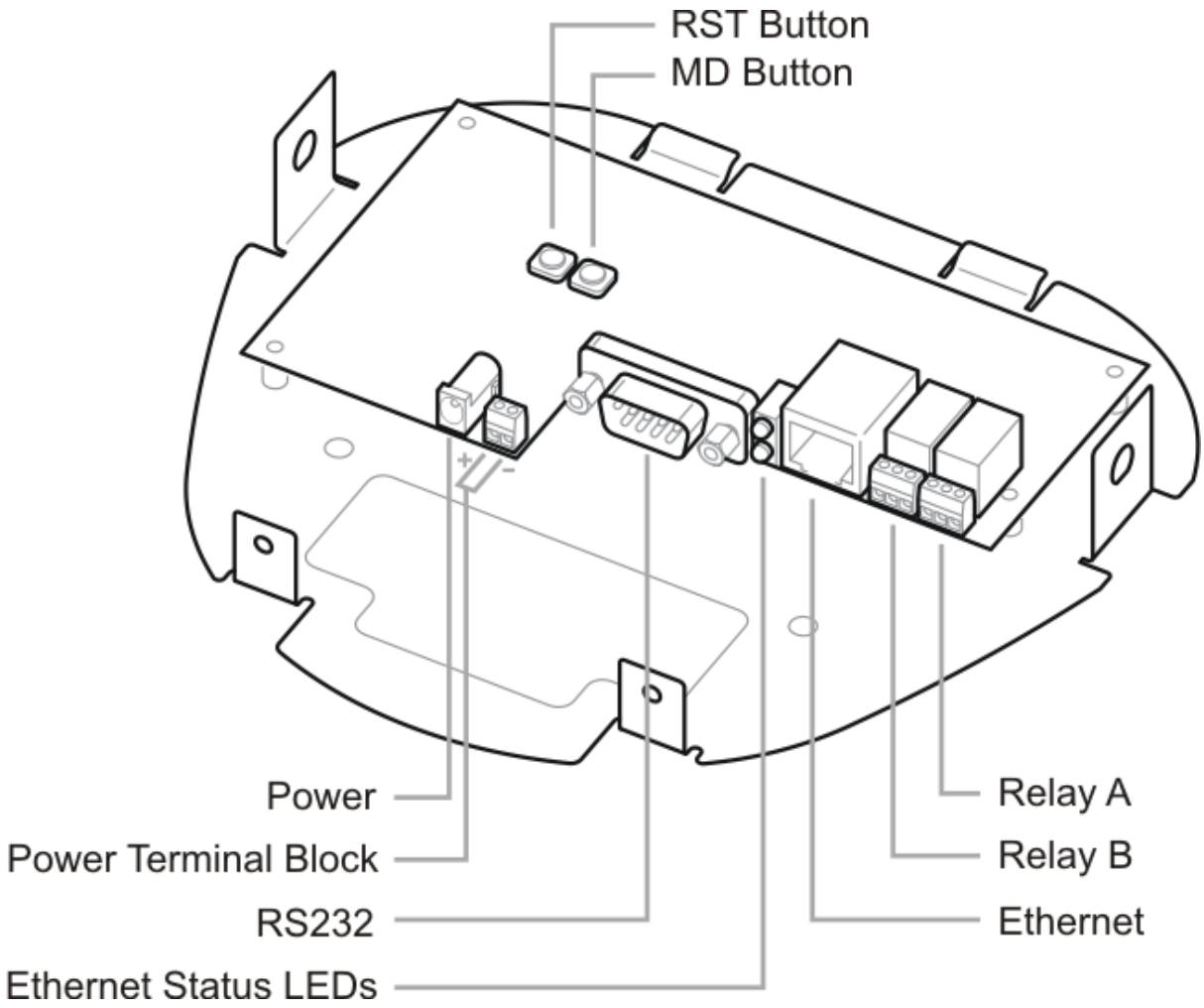
4.5 I/O Connector Pin Assignment & Cable Wiring

The following diagram shows the user-serviceable parts of the TR610 PCB.



These are the pinouts for all internal connectors on the TR610:

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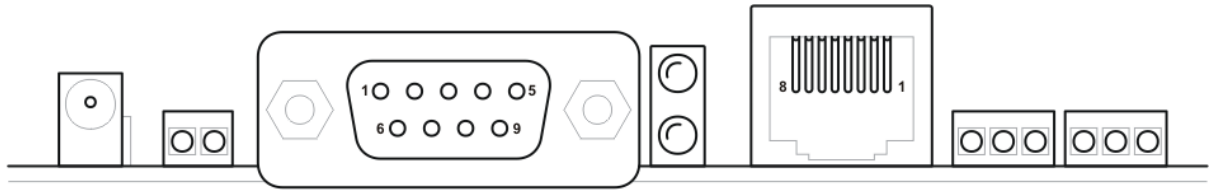

Power

+12VDC

Ground

RS232

1	No Connection
2	**RX** (Input)
3	**TX** (Output)
4	**DTR** (Output)
5	**Ground**
6	**DSR** (Input)
7	**RTS** (Output)
8	**CTS** (Input)
9	No Connection

Ethernet

1	**TX+**
2	**TX-**
3	**RX+**
4	No Connection
5	No Connection
6	**RX-**
7	No Connection
8	No Connection

Relays

COM (Common)

NC (Normally Closed)

NO (Normally Open)

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4.6 Specifications

Display: 128x64 black/white, blue backlight

Proximity card type: RFID 125Khz

Reading distance: 5 cm min.

Internal Memory: Flash, approx. 6,000 event log records*

Interface: 10/100 Base-T Ethernet port, RS232 port

Relays: x2, 1Amp/12V rating

Configuration: On-screen menu, web interface, Tibbo AggreGate

Internal Application: Upgradeable, open-source, written in Tibbo BASIC

Mounting: Wall or desktop (programmable display orientation)

Power supply: DC 12V, 500mA

Operating Temperature: 0-55 degree C

Operating Humidity: 10-90%

* Depends on the size of the loaded Tibbo BASIC application

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4.7 Update History

24 November 2008: Initial release of manual.

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